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A Lecture
ON
PROGRESSIVE AND MALIGNANT ENDOCARDITIS IN CHILDHOOD.

Delivered at the Children's Hospital, Great Ormond-street, London, on Feb. 1st, 1923,

BY F. JOHN POYNTON, M.D., F.R.C.P. LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

I.—INTRODUCTION.

THOSE of you who have been in these wards for any length of time will have realised the frequency of rheumatic endocarditis in the young, and have doubtless heard me urging you to do more for these children than has been done in the last 20 years. What a splendid opportunity this country has lost of leading the van in such progress! I venture to quote a sentence from a letter to me from Dr. Haven Emerson, of New York, in May of this year, which puts the position clearly. He writes: "Whatever may be the final name or identification of the causative organism (he is writing of rheumatism), we know a plenty to release us for action."

It has released America for action, and to some effect—producing one of the greatest organisations in preventive medicine, the Association for the Prevention and Relief of Heart Disease, of which Dr. Emerson is chief. It is my belief that the fact that rheumatic endocarditis can be produced experimentally with micrococci isolated from rheumatic lesions is, for sufferers from heart disease, the greatest event since Harvey discovered the circulation of the blood. This Association is going to be a living proof of the sanity of that belief, for the view that rheumatic heart disease is infective underlies much of its work.

It can, then, be understood how proud and delighted I was to read this other sentence in his letter. "We owe you and Dr. Paine a lasting debt." This generous tribute from another country contrasts humorously with this sentence from an English review of our work in 1913. "The record of work that they have now put forth will doubtless remain as a valuable landmark in the course of discovery, but time alone will show whether the guide post that they have set up is pointing to the true goal or is only indicative of a side-track." Considerable events have occurred since we first tried to vitalise a scheme here. Vaccine therapy has been born, cancer research instituted, tuberculosis made notifiable, and venereal clinics founded. You can hardly wonder, then, that we dwelt in vain upon the tender age of the sufferers from infective cardiac disease, on the waste of money in adult hospitals upon chronic cardiac cases, on the frequency of cardiac disease in our large towns, and on the tragedy of the damaged struggling in unsuitable employments. Doubtless the problem will be undertaken, and in Liverpool, Bristol, Norwich, and Cardiff steady progress is already being made. London lags behind. I feel that the treatment of scarred hearts by drugs is a threadbare theme. The efficiency of sera and vaccines is not yet successfully elaborated. In the last 15 years I have never seen a case of malignant endocarditis recover under these methods; I have had them under care early, in the middle of their course, and late, and have been assisted by experts, so that I speak with some authority, although my experience may have been exceptionally sad.

You have seen much organic valvular disease in this hospital, but very probably you have not seen a single case of malignant endocarditis such as is found in adult wards. The obvious deduction is that malignant endocarditis is not rheumatic, but when you look deeper than the obvious, you will find yourselves in the midst of most interesting problems.

Is malignant endocarditis, as recognised in adults, rare in children? The answer must I think be, Yes. There are many causes of this fatal disease, some are quite obscure, some are well known, as, for example, the pneumococcal and staphylococcal forms. You also know the view that malignant endocarditis is often due to a secondary infection of previously damaged valves by streptococci. Of the frequency of its streptococcal origin I have no doubt. Has it, however, struck you how many children from five years and onwards are walking about in slums, running about in schools, and living in stuffy rooms with damaged cardiac valves? Children are prone to infections to sore throats, to septic wounds, to bad teeth and unhealthy gums, to adenoids and chronic ear and nose discharges; why, then, is malignant endocarditis, if a secondary infection, so rare? If you have ever cut and examined for yourselves thickened and healed valves you must have recognised the very poor attraction such indigestible tissue must have for micro-organisms. Have you been impressed with the frequency either in adults or children, with which *healed* scars whether of skin or pleuræ or peritoneum, or anywhere else, become septic or become the habitat of micrococci? I have not met with frequent examples of these occurrences.

I think the explanation of the problem of malignant endocarditis is much more complex than this, and I am here bringing forward cases showing how intimately study of the rheumatic infection is associated with that of malignant endocarditis.

I have lately been present at discussions upon a most fatal and comparatively frequent disease, recognised under the name of "subacute infective endocarditis," and have found that in these discussions rheumatic heart disease was ruled out. I confess that I felt disappointed—not because I was thereby debarred from airing my views on rheumatism, but because I believed that, directly or indirectly, light might be thrown on the problems which arise in "subacute infective endocarditis" from the pathology and history of rheumatic heart disease, particularly in the young. Experimentally it is possible to produce with cultures fatal acute rheumatic carditis, simple or malignant endocarditis, pericarditis or fatal dilatation with no peri- or endo-cardial lesions; but we are dealing here with the human side, and it is only necessary to point out that experimental evidence is available.

II.—MALIGNANT ENDOCARDITIS.

The following are illustrative cases.

CASE 1.—A boy, aged 10 years, who, when 9, had been under my observation with a condition which every one here to-day I am convinced would have called acute rheumatism. He developed fever, slight polyarthritis, pain, and active endocarditis, in which both the mitral and aortic valves were damaged, presenting a condition often seen here of mitral and aortic regurgitation. He recovered with these two valves damaged, but a year later again fell a victim to an acute illness with fever and polyarthritis. His heart was dilated, and the previous mitral and aortic disease was still in evidence. The polyarthritis rapidly subsided, but the temperature remained raised and the child was very ill, and now showed the signs of general pericarditis—a disaster seen many times in virulent rheumatism. The pericarditis, however, gradually subsided, but other symptoms now appeared—hæmaturia and enlargement of the spleen with tenderness, increasing fever, and pallor; after 18 weeks' illness death followed. The necropsy showed a healing pericarditis, but malignant aortic and mitral endocarditis. I use the term "malignant" in the unsatisfactory sense it is often used to describe large fungating vegetations, in which were myriads of strepto-diplococci. There were white infarcts in the kidney and spleen.

This case illustrates some of the essential problems of infective heart disease. There are still some who think that rheumatism in childhood is not a special disease, and many more who will not admit that it is a streptococcal infection. Here, then, is a child who had a condition indistinguishable from rheumatism in his first attack, and extremely like rheumatism in his second. I say extremely like, because the polyarthritis recovered and the pericarditis had also commenced to heal, but the endocarditis was progressive and streptococcal.

What was the cause of the endocarditis in the first attack? Was that streptococcal and not

rheumatic? Apparently it behaved like a rheumatic endocarditis. What, again, was the cause of the pericarditis and polyarthritis in the second attack? We know from autopsy that the endocarditis was streptococcal—were the other lesions rheumatic? The case clearly shows some of the difficulties in the elucidation of malignant endocarditis, and the dilemma in which those who ignore the rheumatic infection must be placed. I call it a malignant rheumatism with progressive endocarditis, and can see no good reason for assuming that the polyarthritis and pericarditis which subsided were due to any different infection from that of the valves which did not subside. From a study of the morbid anatomy of rheumatic endocarditis I believe that the scars from the first attack were never sound scars, but had always contained within them necrotic areas which harboured the micrococci in a more or less latent phase. Those who served in the late war must have met with some such remarkable occurrence as this during that time: A man who had been severely wounded, and suffered amputation of a limb, came to hospital months later because the healed stump was either so painful, or (perhaps owing to very adverse circumstances of operation) so unsatisfactory that re-amputation or opening of the flaps was necessary. After this operation a virulent septicæmia suddenly developed, causing death. How was this event to be interpreted? We believed that there was latent infection in that stump, and that the opening up of the tissues and the particular phase of the man's resistance was such that the micrococcus became intensely virulent. Such a process I believe to be the basis of many cases of malignant endocarditis in man, for I believe that many adults who appear to have healed valves have unsound scars containing micrococci in a latent stage, and that either a fresh attack of rheumatism or of some other infection, or a lowering of the vitality by insanitary surroundings, by anæmia, or excessive nerve strain and worry, permit them again to become virulent, and, by their peculiar relation to the general circulation, to produce a fatal illness.

The essential point in my argument is, then, that I believe we cannot at present, from clinical observation, tell when a cardiac valve is soundly healed. We shall find in damaged valves small areas of necrotic tissue hemmed round by ill-formed connective tissue, but cannot think that we can detect them clinically in the present state of our knowledge. This is one of my reasons for urging the supervision of rheumatic children, because I hope we may thus discover some evidences of activity of the rheumatic infection which under present conditions we may miss. Supervision of young adults in whom malignant endocarditis is more frequent might very possibly lead us to ascertain much more about the predisposing causes which lead to such a catastrophe.

Assume, now, for the moment, that rheumatic endocarditis is a strepto-diplococcal infection, and that many cases of malignant endocarditis are strepto-diplococcal—I do not say rheumatic. Ought we to picture the resulting endocarditis as due entirely to these micrococci? They are the sparks that start the fire, but how much depends upon the material that is set on fire? That is a problem of great importance, more particularly when dealing with the streptococci, which constitute a group so difficult as to puzzle the most skilled bacteriologist.

It can be seen at once how this question arises in the case I have just described. Was the second illness malignant because the micrococci had been incubating in the child's tissues from the first attack, or because something had occurred to destroy his resistance? Or was it fresh infection in damaged tissues? Or, lastly, had the character of the streptococci altered in some mysterious way in the tissues and ceased to produce rheumatism? Experiment throws just a flash of light upon this question, for we found in a series of animals, inoculated from cultures taken in each case from the damaged valves of the previous animal, an increasing cardiac virulence. It seemed as though their passage through cardiac tissues made them more active in those lesions—but this is only a surmise. We surely may gain some light upon the other side of the question—the influence of injurious surroundings on the character of a cardiac infection—from the supervision of cardiac cases.

CASE 2.—A boy, aged 7 years, whose sister had suffered from rheumatic fever and morbus cordis, was admitted to University College Hospital, London, in 1911. He had been suffering from fever, malaise, and polyarthritis on admission, but the polyarthritis had subsided in three days. Then a rheumatic erythema appeared, rapidly followed by endocarditis and pericarditis of extreme severity, with pleurisy. Death occurred after a month's illness. At post-mortem was found a copious blood-stained effusion in the pericardium, with the usual shaggy appearance of the heart. On the aortic valve were minute vegetations which you could have called rheumatic, but from the anterior mitral flap sprang a large recent vegetation, from which Dr. Graham Forbes isolated strepto-diplococci in pure culture, and which resembled the large fungating vegetation of a malignant endocarditis. This specimen, with the cultures and films of the micrococcus, was shown at the Pathological Meeting of the Medical Society of London in February, 1911.

This case again opens up interesting points. Granted that malignant endocarditis is usually an infection, acting in an already damaged valve, we all know this is not a necessity. Pneumococcal endocarditis, for example, is usually fatal in a first malignant attack. Presumably any other cardiac infection may end fatally in a first attack; at least the onus rests with those who claim exceptions to prove this point. Here we have in a child a first attack of streptococcal origin, having associated with it evidences of acute rheumatism—viz., a transient polyarthritis, an erythema multiforme, and a non-suppurative pericarditis, with a condition of the aortic valve not to be distinguished from a rheumatic endocarditis. Was it not probable, then, that the mitral lesion was a primary malignant endocarditis of that valve? If it was, further possibilities arise to which I shall allude later in this lecture.

III.—PROGRESSIVE ENDOCARDITIS.

At this point I am going to turn to mitral stenosis in childhood, reminding you first that the only way to get a complete knowledge of this, the most important of all valvular lesions, is from a study of its origin in the child. At first sight no lesion might appear to be further removed from a malignant endocarditis than this. It is, however, a progressive lesion, for, although it may certainly arrest in an early stage, more often it grumbles on year after year, gradually becoming more apparent on cardiac examination, and then by clinical symptoms. Repeated attacks of chorea, recurrent rheumatic pains, and occasional arthritic swellings may give warning that the rheumatic infection is not dead.

During the early phase over some years there may be no cardiac symptoms, and if the other rheumatic manifestations are absent, one is faced with a primary cardiac rheumatism which may never come under care until the definite clinical symptoms of mitral stenosis have developed. Thus arise many of the cases of mysterious mitral stenosis. I want to emphasise this absence of symptoms in early mitral stenosis, because it is often said, and wonder is expressed, that patients with "subacute infective endocarditis" have had practically no symptoms over long periods. If the infection in these cases is not virulent, but obstinate as it is in mitral stenosis, there is no reason why there should be any symptoms of note. The lesions commence within the valve, the vegetations at first are small, the micrococci liberated into the circulation are neither massive in numbers nor very virulent, and we know that vast numbers of them can be destroyed by the tissues locally. The valve at first is not greatly deformed, and it is only in the later stages when with failing resistance and rising virulence the patient becomes thoroughly ill from toxæmia, or complications, that one can realise the truth.

In passing, I have the greatest objection to the term "subacute infective endocarditis" because it

introduces the time element as a criterion of a disease and an infection. Let me add that when I say that vast numbers of micrococci are destroyed locally in malignant endocarditis, I am not making a general statement to fit in with my own views. Years ago at the Clinical Society I saw healed valves shown with large cretaceous vegetations that could only have been at one time a malignant endocarditis. Then in "Researches on Rheumatism" (p. 325), in a paper written 12 years ago, Dr. Paine and I wrote of malignant endocarditis thus: "The point of importance is that in many of the slow cases *there are well-marked attempts at cure in the vegetations*, and if this process is studied we find that the necrotic areas become less filled with clearly staining micrococci and numerous refringent granules become visible." It must not be thought that this disease is progressive in the narrow sense of the word. It is a disease which shows, just as does acute rheumatism, waves of activity and waves of comparative quiescence, but the total result is progressive, there are two steps forward and one back. We want some discovery to tell us how to act when the efforts of nature are causing the step back.

Above all, in considering malignant endocarditis it must be remembered that it is not the size of vegetations but the number and virulence of the micrococci which determine the rapidity of the cases. The rheumatic type usually produces a subacute and chronic form, the pneumococcal a virulent form.

My next case illustrates that a condition apparently so unlike malignant endocarditis as mitral stenosis may terminate as a malignant endocarditis.

CASE 3.—A girl, aged 11 years, had suffered from rheumatism since 5 years of age. I had seen her first at Great Ormond-street, and later at University College Hospital. In all, there had been five definite attacks, and mitral stenosis had resulted, with the usual thrill and presystolic murmur. In October, 1913, she came to my outpatient department at University College Hospital, with a six weeks' history of illness. There had been fever, pains in the limbs and joints, and sweating. On examination I found general pericarditis, but—what was more remarkable—Osler's spots on the pads of the index and ring fingers of the left hand, and a large hæmorrhagic patch in the left palm bordering on the wrist. This case made a great impression on me, for it was the first time I had seen "Osler's spots" in a child, and inquiry from her mother elicited the fact that she had frequently noticed them on one finger or another during the recent illness. The aortic valve was now damaged as well as the mitral. This child lived for 14 weeks with continuous pyrexia, and at the end of October had a cerebral embolism in the left middle cerebral artery. The necropsy showed numerous subserous petechiæ, infarcts in the spleen and kidneys, and a small aneurysm on the left middle cerebral artery. There was stenosis of the mitral, with a large vegetation on the anterior flap which had spread to the aortic valve and also on to the wall of the left auricle. Strepto-diplococci were obtained in pure culture from the vegetations.

I have seen other examples in childhood of the supervention of malignant endocarditis upon a mitral stenosis, and the particular interest of such cases to me lies in the probability that the valve at the time of the fatal illness was never thoroughly healed. The spread of endocarditis from the mitral to the aortic valve, so frequent in the young, suggests a threatening malignancy, and we have shown that later in life such cases may become malignant.

IV.—SIMPLE ENDOCARDITIS.

My next case is very recent; the diagnosis when the child left the hospital was not that of malignant endocarditis, but the case illustrates certain features in acute rheumatism which help us to realise how closely rheumatic carditis and malignant endocarditis may approach one another.

CASE 4.—A boy, aged 11, was in the hospital six months, and came under my care on Feb. 18th, 1922. He had been ill for two months before admission, beginning on Dec. 2nd, 1921, with a chill followed by a sore throat and weakness. The sore throat was said to have been a "quinsy which did not break." In January, 1922, he had pains all over him, and some pleurisy, and recently there had been another sore throat. On admission he had a large heart with a mitral systolic murmur. The liver extended 1½ inches below the costal arch, and both pulmonary bases were impaired. The diagnosis of rheumatic heart disease was made, and four days later pericarditis was detected. A fortnight later the friction had almost disappeared, and both the *aortic* and the *mitral valves* were now found to be damaged. A week later he had another sore throat, more fever, and some arthritis of the right shoulder. At the end of March nodules were appearing on the knuckles and elbows. In April he had another sore throat and fever, and in May another, the fifth since his first illness, with rheumatic arthritis in the left shoulder. Blood cultures were sterile, and neither salicylates nor vaccines appeared to influence the disease. In June and July he began to improve slowly, and we hoped that he would in spite of an aortic and mitral lesion with a badly damaged myocardium be able to undergo an operation for enucleation of the tonsils, which we had by force of circumstances been compelled to treat temporarily by local painting with iodine. Once more at the end of July, just as arrangements had been made, there was another sixth attack of tonsillitis, with arthritic pains, fever, cardiac dilatation, and epistaxis. A recurrence of pericardial friction was also detected. The parents now removed him from hospital.

This case was an unfortunate one. It was apparent that the pressing need was enucleation of the tonsils, but the first attack of carditis was so serious and the damage so extensive that I confess to have been afraid to expose the boy to the risk, with recent aortic and mitral lesions and a heart weakened by pericarditis. Each time we seemed to be getting him sufficiently well, he relapsed, and finally his parents preferred Christian Science, which may succeed if his tonsils make a final and successful effort.

These relapses have been well recognised in acute rheumatism; in fact, the late Dr. J. MacClagan believed the cause of rheumatism to be akin to malaria for this very reason. They are seen repeatedly on a minor scale, and from our point of view they are of interest, because they point to waves of virulence and periods of latency in the infection, and it is on this feature I have been dwelling with reference to malignant endocarditis. It is very difficult to separate such an illness from a malignant endocarditis, and had there not been the incessant sore throats it would have been still more difficult. If this patient survives, as he may do with a sadly damaged heart, he is just the case I should suspect might die later developing a frank malignant endocarditis.

This completes my illustrative cases: the first was a malignant endocarditis in a child with damaged valves; the second a primary malignant endocarditis attacking a previously healthy valve; the third a malignant endocarditis supervening upon an active mitral stenosis; the fourth a recurrent rheumatic carditis, approaching closely to a malignant type.

V.—CONCLUSIONS.

Malignant endocarditis in childhood shows the same features as in the adult, though as a rule it is more rapid in its course. There are fever, sweating, anæmia, purpura, Osler's spots, infarctions, optic neuritis and retinal hæmorrhage, drowsiness, aneurysms, diarrhœa, cerebral hæmorrhage or embolism, hæmaturia, enlargement of the spleen, cardiac bruits, and a continual excited action of the heart. I have seen in a child a femoral aneurysm as large as a cocoanut from an embolus in that vessel. This likeness to the adult cases is most significant when the close association with acute rheumatism is seen.

I hold that there is a rheumatic malignant endocarditis which may arise from the simple form or be primary in origin. Further, I believe that the mysterious cases of streptococcal origin in adults are either primary cardiac rheumatism of a malignant type or, if not actually rheumatic, more closely allied to the rheumatic infection than any other. In other words, they are due to a strain of that group, just as we get different strains in other great infections—e.g., typhoidal, pneumococcal, and meningococcal.

I hope, then, that these cases have illustrated my main thesis—namely, that a study of rheumatic heart disease is probably one of the best methods available at present for throwing light upon the malignant endocarditis met with not only in childhood, but also adult life. But it is not my wish to give the impression that I can only see malignant

endocarditis in childhood through the spectacles of rheumatism. On the contrary, I have seen fatal cases associated with osteomyelitis of staphylococcal origin, and complicated with numerous metastatic abscesses; I have also seen them result from pneumococcal infection, and associated with pneumonia.

Naturally it will be asked why malignant endocarditis is rare in the child and rheumatic heart disease so common; to answer would require a much more profound knowledge of disease than I possess, but I believe it to be bound up with the problem of the differences between immature and mature tissues. The great infections in childhood tend either to be overcome, or to generalise and kill by wide dissemination—general tuberculosis, general rheumatism, general pneumococcal infection. In the adult the tendency is to local virulence—pulmonary tuberculosis, virulent pneumonia, malignant endocarditis. It may be that with the supervention of puberty some mysterious changes occur in the tissues that cause the streptococci which produce acute rheumatism in the young to alter their behaviour and produce the more obstinate lesions of the malignant type of endocarditis, but this is mere speculation, and I incline to the streptococci having a prolonged life in human tissues and to diminished resistance of these tissues.

VI.—PRIMARY CARDIAC INFECTION.

I will now dwell shortly on primary infection of the heart, meaning by this an infection attacking the heart so predominantly that any invasion of other tissues either does not occur, or is so slight as to be overlooked. For a tuberculous child to have a predominant meningitis is no rare event, and when it occurs we do not say it is not tuberculous because there is no other obvious sign of that disease. Again, chorea frequently occurs as a *solitary* manifestation, and we do not say it is not rheumatic on that account, because we realise that some years later the child may be seen with an obvious rheumatic polyarthritis and heart disease. It has taken many observers and many years to prove this latter fact. We are at present in much the same position with rheumatic heart disease, and it is continually stated that a case of endocarditis is not rheumatic because there is no history of rheumatism. Why should not many of these cases, nevertheless, be rheumatic in the sense that they are due to the same infective agent, only that in these instances the other manifestations have been suppressed or have been so evanescent as not to attract attention? We can only settle this point, as chorea was settled, by a great number of observations by many observers. If there is a primary cardiac rheumatism, why should it not conform to other great infections and be of all grades of severity from fulminating malignancy—through subacute forms—to the simple progressive mitral stenosis? There seems to be no reason to the contrary, and it would be surprising if rheumatic endocarditis was always simple in character.

In conclusion, I can see no reason to suppose that there is any mysterious hidden disease "rheumatism," existing apart from any manifestations—a curious idea prevalent, I believe, in this country—a disease which has no manifestations except those produced by a *secondary* invasion by streptococci. It is a pure assumption, which might be equally applied to the tubercle bacillus and tuberculosis. That in both instances there may be a constitutional tendency no one would deny, but the day is passed when we call tendencies diseases, and the day has not yet come when experimental evidence, showing that the essential lesions of a disease (the lesions which indeed constitute the disease as we know it) can be reproduced by micrococci, is to be put aside, and the manifestations of a disease are to be looked upon only as secondary results due to an added causal factor. If we are to find that there is a disease rheumatism bereft of carditis, polyarthritis, nodules, chorea, and so on, and when these occur are to call them complications, we are faced, in my opinion, with a new pathology of extreme complexity.

THE IMMEDIATE MICROSCOPIC DIAGNOSIS OF TUMOURS AT THE TIME OF OPERATION.

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IT is now 12 years since I ventured to draw the attention of the medical profession to the value of the immediate microscopic diagnosis of tumours at the time of operation.[1] After an experience of the practice of the method which now extends over a period of 23 years, I have no hesitation in again urging its great value, in the hope of making its use more widely known and more appreciated.

The method of examination which I practise and for which I claim great advantages, is very simple and is given in detail at the end of this paper. The whole process, including freezing, cutting, mounting, staining, and examining of a section, can be accomplished, when the pathologist is well acquainted with histology and morbid anatomy, in the short space of five minutes or less. It will be seen, therefore, that the delay in the performance of an operation is very short and is amply compensated for by the information gained as to the exact nature of the tumour with which the surgeon has to deal. The accurate diagnosis of a tumour cannot always be made from clinical evidence alone, and the aid of the microscope is often required. In some parts of the body such as the mouth, nose, cervix, and skin, a piece of the suspicious lesion can be removed without a general anæsthetic and sections prepared by the slow paraffin method. In other situations, particularly the breast, a general anæsthetic is required in order that the surgeon may make an exploratory incision.

Operative Problems.

It is often found, and one may say it is generally the case, that when the tumour is exposed the naked-eye appearance makes the diagnosis fairly easy; but this is not always the experience of operators. What happens? In some cases the surgeon explores a swelling and finds a mass of tissue which is not obviously new growth. A close inspection and palpation are not sufficient to enable him to decide whether he is dealing with a malignant growth or an inflammatory mass. Say the lesion is in the breast, what is the surgeon to do under these circumstances? If the lump is malignant the extensive operation of amputation of the whole breast with removal of pectoral muscles and axillary glands is indicated, whereas a simple inflammatory condition of the breast requires but a simple local removal. The muscles and axilla need not be interfered with. I think all surgeons will agree that this is not an uncommon problem. In these cases the presence of a pathologist who possesses the requisite knowledge of morbid anatomy and histology, with his simple cutting apparatus, is of great service to the surgeon. In the absence of a pathologist a surgeon has to make up his mind to do one of three things: (1) remove a small piece of tissue for subsequent microscopic examination and close the wound; (2) remove the mass or breast locally; (3) amputate the whole breast and remove muscles and axillary glands. If the tissue or lump after subsequent microscopic examination proves to be malignant, a second operation must then be undertaken. This means anæsthetising again a patient who has suffered great mental anxiety while awaiting the pathologist's report. I have had many specimens sent to me for examination and report from cases falling in these divisions which have proved to be malignant. An immediate microscopic section at the first operation would have enabled the surgeon to settle the diagnosis straight away. An important point in such cases is

[1] THE LANCET, 1910, ii., 239.

the risk to the patient of the dissemination of malignant cells during the interval between the first and second operations after opening up the surrounding lymphatics by the surgeon's knife. This appears to be a real danger which I think all will admit. I have not had the opportunity of proving this by an actual example and should be greatly interested to hear whether any surgeon has met with such a case in practice.

Supposing the surgeon decides that the operation indicated under procedure (3) is the one to perform, and this is carried out. If the tumour proves to be malignant the operation is quite justified; on the other hand, if a careful examination of the specimen reveals the absence of a malignant growth an unnecessarily severe operation has been performed. I have examined many breasts removed in this manner for supposed malignant disease which showed only inflammatory changes and cysts. I think it is a great pity such mistakes should occur.

Illustrative Cases.

The following cases will serve to support my view that an immediate microscopic examination is of real value to the surgeon:—

A typical example of breast tumour of doubtful clinical nature; the patient under the care of Mr. Tom Bates; I was asked to attend the operation. A small tumour was felt in the breast, whether solid or cystic it was not possible to tell. An incision revealed a small solid hard mass, about three quarters of an inch in diameter. A fresh microscopic section showed spheroidal-celled carcinoma with well-formed fibrous matrix. The complete operation was performed, and the breast when removed was found to contain, in addition to the above growth, a large thin-walled simple cyst. There was one small soft gland in the axillary fat; this gland was found to be free from secondary growth.

The following two cases under the care of Sir Crisp English are instructive:—

In both patients a small firm freely movable tumour was felt; provisional clinical diagnosis, fibro-adenomata. In the first case the growth was excised and found to be well defined, flat, nodular, and about ¾ by ½ in. in its chief diameters. On section it was hard, white, and contained several minute cysts. A fresh microscopic section revealed the typical structure of columnar-celled carcinoma. After complete removal the breast was found riddled with small cysts and several large soft inflamed glands were seen in the axillary fat. A definite instance of carcinoma arising in part of a chronically inflamed breast. The tumour in the second case was very similar in size and appearance to the above. It proved to be a simple fibro-adenoma of the acinous variety and so no further operative steps were necessary.

The next case shows in a striking manner the value of obtaining immediate microscopic evidence of the true nature of a breast affection.

Clinically there was a retracted nipple with puckering of the adjacent skin, and below this a firm mass was felt. The surgeon had no doubt that the lesion was malignant, and made a few facetious remarks on meeting me at the patient's house. I was present at the request of the doctor in charge of the patient. However, the pathologist often gets his own back, and histological evidence was obtained in a short time as to the true nature of the trouble. The mass was simple inflammatory in character, carcinoma and tubercle were easily excluded. A small operation was then performed.

The following interesting case occurred a short time ago in the practice of Mr. Sampson Handley.

Several small nodules were present just beneath and apparently attached to the skin over the breast. The nodules suggested secondary deposits from a growth in the breast, but no tumour could be detected by palpation of that organ. The nodules were removed and examined at once. The microscope revealed small atheromatous and calcareous arteries, with much small round-celled infiltration of the walls and surrounding tissues, and an organising thrombus in one of the vessels. No evidence of new growth could be discovered and so nothing further was done.

The presence of atheromatous arteries in this situation is very interesting and quite new to me.

Cysts of the Breast.

Cystic changes in the breast are very common and in nearly all cases multiple. Clinically they are very often difficult to make out, for a small deep-seated cyst may form a hard swelling and fluctuation may be absent. The difficulty of deciding this point is proved by a reference to my tables of cases. Of 382 cases of breast swellings 113 proved to be cystic. The advantage gained by having fresh sections prepared and examined in such cases is strikingly shown by observing the number of breasts in which carcinoma was found at an early stage. From experience gained by observation I make it a rule carefully to examine the wall and adjoining tissues by cutting up the breast in thin slices and then preparing sections of the hardest part. In this way I have been able to detect early formation of carcinoma in eight cases. The new growth is usually found in the inflamed breast tissue outside the cyst wall, but sometimes the latter is involved. These results are sufficient to discourage the practice of tapping breast cysts and letting the person go away without further operation; if this is done one can never tell when a carcinomatous growth is missed and given a fresh lease of life. The fluid removed from these cysts gives no indication of the presence of carcinoma. Discussing this procedure some years ago with a well-known surgeon who practised it, I was told that one of his cases did return later, and that he discovered carcinoma in the wall of the cyst tapped some months previously.

Duct papilloma usually leads to bleeding into the cyst, and so the withdrawal of fluid by tapping is not likely to be followed by the departure of a patient without further interference. In the instances mentioned above where carcinoma was found in or outside the cyst wall, no bleeding had occurred and the fluid contents were either dark and clear or milky in appearance.

Frequent Occurrence of Multiple Cysts.

Although in some breasts there is apparently one cyst only, if one slices through the organ in nearly all cases other small cysts are to be found. A common condition is multiple cysts ranging in size from about 1¾ inches to ¼ inch in diameter. Between the cysts the breast tissue is usually hard or "knotty," and microscopic examination of these patches sometimes reveals the presence of carcinoma. The question arises in the case of a cystic breast as to how much of the organ should be removed. The general cystic breast must, of course, be taken away entirely—i.e., dissected from beneath the skin, the latter with the nipple being left behind—it is not necessary to remove any skin, and as women value the nipple it should also be left. Where there is apparently only one cyst, and the breast tissue around looks natural, a local removal may be undertaken, but, as I have pointed out above, there is every possibility of there being other cysts present in other parts of the breast; if these are left behind further trouble is to be expected, for they may enlarge and necessitate a further operation, and are also potential sites for the development of carcinoma. I would therefore feel inclined to advocate the complete enucleation of the gland as for the definite multiple cyst cases. This may seem a drastic policy to pursue, and it is often disregarded, but one always feels rather anxious as to the future development when it is neglected. This, however, is a point worthy of a full discussion by surgeons and pathologists; so many matters in the personal and mental conditions of patients have to be taken into consideration, and surgeons are divided in opinion on the subject.

The above examples will, I hope, serve to support my claim that the immediate microscopic method is of real value—by this method a correct diagnosis can be made at the time of operation, and thus supported the surgeon can pursue the right line of treatment with feelings of the greatest confidence. This method of investigation should also appeal to the general practitioners, who from the nature of their work are frequently called upon to treat early cases. I have dealt rather fully with breast problems for two main reasons, first because they so well illustrate the difficulties of diagnosis, and secondly because they form such a large proportion of the cases I have had to deal with in my practice. During the past 23 years

I have attended as pathologist to assist the surgeon in making a diagnosis in 540 cases, and a reference to the list appended will show that of this number 382 were clinically doubtful tumours of the breast.

I may, perhaps, be permitted to observe that these cases have occurred in the practice of a large number of surgeons, most of whom are well known. This is a striking commentary on the difficulty and occasional impossibility experienced by able surgeons in making a correct diagnosis at times on clinical evidence alone, and a sufficient proof that the method advocated here is sound in principle.

Selection of Piece of Tissue.

This very important point needs careful attention by the surgeon and pathologist. Such an observation may seem superfluous, but in my experience it is not always easy to determine whether the incision into a buried mass has quite reached the tumour proper. This is especially marked in breast tumours when a small nodule of carcinoma is surrounded with dense inflammatory tissue. I have had to ask for a second piece to be cut out in such cases when the first piece examined has shown a structure inflammatory in nature and yet not quite like ordinary mastitis. A case I saw lately illustrates this point very well—a large fatty breast with a growth buried in the deeper part, the nodule being about three quarters of an inch in diameter. An incision was made and passed through the side of the growth, the lateral portions retracted at once and the surrounding breast tissue bulged into the wound, completely hiding the real tumour. The effusion of blood which goes on at the same moment increases the difficulty of distinguishing the different tissues properly, and if the operator is not extremely careful a piece of the bulging tissue is removed and the growth itself missed. The first piece removed was taken from the "bulging" tissue and a second piece lower down showed the structure of carcinoma. A pathologist thoroughly familiar with the naked-eye appearances of morbid tissue can make a shrewd guess on carefully "blotting" the piece removed as to whether the right tissue has been given him for examination. In all cases of growth or ulceration the periphery or edge should be selected for examination, and care should be taken to include a portion of the normal tissue. It is particularly important to follow these precautions in tongue lesions and ulceration of the cervix. In growths of the jaws and other bones any part of the tumour will usually suffice.

Mouth.—In this region it is often easy to cut out a piece at the edge of a suspicious ulcer or swelling while the patient is in one's consulting room. I have often done this myself. In other cases this is not possible or advisable; the presence of a pathologist in the operating room is then of great assistance to the surgeon. So much inflammatory thickening occurs about growths in the mouth that a small piece may not include a portion of the tumour, and a mistake in diagnosis is easily made. This point must be borne in mind by the surgeon who sometimes snips or peels off a tiny piece of the edge of an ulcer for purposes of examination. I recorded an instance in my previous paper illustrating this. The advantages gained by the presence of a pathologist at the operation are—failing a definite report on the first piece examined other and larger pieces may be cut out if the clinical condition warrants a further investigation. The following case is of interest:—

Papillomatous growths were present in the cheek and lip of a man, and another on the tongue. Several glands were felt in the neck. The growths from the cheek and lip were examined and found to be innocent papillomata. A piece from the tongue lesion showed early carcinoma developing in the deeper part. Mr. Sampson Handley then removed half the tongue and cleared out the glands. The latter were free from secondary growth.

In another patient a small ulcer was present on the inside of the cheek. Its nature was doubtful and a small piece was removed for examination. A fresh section showed inflammatory changes and so nothing further was done.

Jaw.—The following jaw cases may be recorded:—

A growth involved the right upper jaw of a girl aged 15 years. A small piece examined at the time of operation showed typical sarcoma of the spindle-celled variety with also some myeloid cells and spicules of bone. Mr. E. B. Waggett then removed the superior maxilla.

A female patient under the care of Mr. W. D. Harmer had a suspicious lesion of the maxillary antrum. Microscopic examination of the tissue scraped out showed simple inflammatory changes and two small myxomatous poylpi. No further operation was needed.

A young man developed a swelling in the symphysis of the lower jaw, a piece of the growth which was solid and white showed the structure of squamous-celled carcinoma which had evidently originated from the deeper part of the gum. Mr. Harold Wilson removed the symphysis and cleared out the lymphatic glands below the jaw. These glands did not reveal any growth on subsequent examination of paraffin sections.

Larynx.—The uncertainty in making a definite diagnosis from pieces of growth removed from the larynx is well known, and is due to the difficulty of removing a wedge of growth through the glottis, particularly in the cases of papillomatous masses on the vocal cords. Where investigation of the lesion necessitates thyrotomy the preparation of a section is of great value. I have recorded cases illustrating this in my previous paper.

Gall-bladder.—The following case shows in a striking manner the value of coöperation between the surgeon and pathologist. It occurred in the practice of my late chief, Mr. C. B. Lockwood.

The patient had symptoms of gall-bladder trouble and an exploratory operation was contemplated. Before going on with this, however, the surgeon removed a piece of tissue from a small swelling over one of the lower ribs, and microscopic sections were prepared. These showed the structure of columnar-celled carcinoma. The diagnosis was then made of primary carcinoma of the gall-bladder with a secondary deposit in the chest wall. An advanced case, obviously unsuitable for any further interference.

Uterus.—In uterine cases frozen sections can be prepared from material removed with the curette and from pieces cut out of the cervix; an immediate diagnosis made, and if malignant a radical operation performed forthwith. Under certain circumstances, for domestic or personal reasons, it is a great boon to the patient to have the diagnosis settled immediately and for the operation to proceed under the one anæsthetic. In cervical growths at an early stage several pieces can be examined, the smaller and earlier the growth the more risk one runs of missing the important spot when one piece only is removed at a preliminary sitting. The soft material obtained from the body of the uterus is not easy to preserve in thin slices, but with practice it can be done.

In the list of cases which accompany this article it will be seen that carcinoma was demonstrated in 5 cases out of 15 curetted. Fortunately for the pathologist carcinomatous tissue hangs together sufficiently well to enable him to proceed with the necessary manipulations required to mount and stain the sections. Wedge-shaped pieces removed from the cervix are easily examined. Out of 8 cases I found carcinoma in 7.

In a patient operated upon by Dr. Cuthbert Lockyer, soft friable fragments were curetted from the body of the uterus and fresh sections showed the structure of columnar-celled carcinoma. In another patient Mr. Lockwood curetted tissue from the interior of the cervix, which proved to be columnar-celled carcinoma. My note describes the specimen after removal as a large, soft, white and hæmorrhagic growth in the upper part of the cervix, and many large fibroids were present in the wall.

I was present at an operation by Mr. Percy Furnival on a patient whose uterus had been removed some months previously for carcinoma of the cervix, and in whom some growth had apparently recurred, as several small nodules were discovered in the scar at the upper end of the vagina. The patient wished for the operation to be carried out in her own house, and it was decided to have microscopic sections examined at the time of the operation. The little nodules were

removed, and the sections prepared and microscoped at once. They showed the structure of simple granulation tissue. The granulations evidently arose as the result of irritation around the stitches put in at the former operation. The innocent nature of the lesion having been proved no further interference by the surgeon was necessary, and the anxiety of the patient and relatives was thus allayed.

Vagina.—Primary carcinoma of the vagina is an uncommon condition and the following case is worth recording:—

A small soft red mass projected into the lumen from the lower end of the vaginal wall, it was circular in outline and had not invaded the adjacent tissues. The late Sir Charles Ryall removed a piece of the growth and microscopic examination revealed the structure of squamous-celled carcinoma. A wide local removal of the tumour was then performed.

Foot.—The following case may be quoted.

Mr. Sampson Handley removed a piece from the edge of a growth occurring in the skin of the sole of the foot. An immediate microscopic section showed the structure of a papilloma. As so often happens is such growths, a part of this tumour looked suspiciously like carcinoma in an early stage, but one came to the conclusion that it was as yet in the simple condition. A local removal only was therefore performed.

In another patient under the care of Mr. L. E. Barrington-Ward a soft fungating mass was present on the inside of the left foot. A small piece of the tissue was examined microscopically which showed the structure of a spindle-celled sarcoma, so amputation of the limb was proceeded with at once.

I find that some surgeons consider frozen sections of fresh tissues unreliable and difficult to "spot." I take this opportunity of pointing out that this is incorrect. The sections prepared in a few minutes will be found to show the structure of tumours and tissues quite as plainly as those cut and stained by the paraffin method. The mechanical processes involved in freezing, cutting, mounting, and staining of fresh sections are very simple and may be acquired by anyone after a little practice. The interpretation of the pictures presented under the powers of a microscope, however, is a different matter; here the pathologist is put on his mettle.

Evolution of Pathology.

Just as a surgeon himself requires years of experience for the successful practice of his craft, so it is necessary in the case of a pathologist. The latter must investigate every kind of morbid lesion and of normal tissues, so that by familiarity with their naked-eye and microscopic appearances he is able to make up his mind quickly and act. He must be able to give a definite opinion as to whether the case he is dealing with is malignant or not. The surgeon expects a quick and definite report, on which the fate of an important organ of the body, or even a limb, often depends. I have made it a rule to have paraffin sections prepared of all my cases, and am pleased to be able to record that in every instance the pictures seen in the permanent sections have agreed exactly with those made immediately at the operation—surely a striking proof of the reliability of this method.

In a few instances I have not been able to place a growth in its exact group—i.e., carcinoma or sarcoma—but in none of them has there been difficulty in stating whether the lesion was malignant or innocent. In one case of stomach ulcer the fresh section showed simple inflammatory changes, and this was verified by the paraffin section. Later the clinical condition progressed in a malignant manner. The explanation of this failure to spot malignant growth microscopically is the fact that carcinoma arising in chronic ulcers of the stomach does not at first involve the whole edge. Therefore the piece removed may easily come from an innocent part. This case proves that it is not safe to rely on a section from one part of an ulcer, and is a vindication of the present-day practice of complete excision of gastric ulcers whenever possible.

Many years ago morbid anatomy formed the whole bulk of the science of pathology, which was greatly helped and put on a sound footing by the introduction of histological methods. Thirty years ago the pathological work at my old hospital consisted of the examination of post-mortem and operation material by the surgical and medical registrars. Microscopic sections were made by clerks, and submitted to the registrars, who duly reported on them. All sections were prepared by the freezing method after preliminary hardening in alcohol or Müller's fluid. Bacteriology then came along with rapid strides and the post of pathologist was instituted. Since that time specialisation has taken place to an advanced degree, and now we have the bacteriologist, morbid anatomist, clinical pathologist, chemical pathologist, and so on. This evolution in pathology appears to have had the effect of limiting the extensive study of morbid anatomy and histology to quite a small number of pathologists.

The acquisition of a wide knowledge of tumours and diseased tissues both to the naked eye and under the microscope requires long and constant observation of a mass of material such as can be acquired in the post-mortem room, museum, and pathological department of a large hospital. To this must be added a sound knowledge of clinical medicine and surgery. Embryology also plays an important part in helping one to elucidate the mystery of some tumours. A complete knowledge of all the above branches of pathology is obviously not within the reach of one man, but for the work advocated in this paper I wish to advise the morbid anatomist of the future to follow the line set out above. He will be well repaid by the great pleasure given him by the interesting pictures seen on the table and under the microscope.

I have seen the statement made that "there is nothing fresh to be seen in morbid anatomy and histology." I do not envy the man who made that remark. My own experience in the study of morbid anatomy began in 1884 at St. Bartholomew's Hospital Museum, and morbid histology in 1892. Since that time it has continued at Cambridge, two other London hospitals, most of the London hospital museums, and the institution to which I am now attached. Yet rarely a week goes by in which I do not come across something new to me—surely a sufficient answer to such a foolish statement.

Pathological Report During Operation.

In some instances my services have been retained under rather peculiar circumstances. The patient has heard that a pathological report could be obtained during the course of an operation, and has asked for this to be done. It has occurred to me that a wider knowledge of the method under review among general practitioners and the public will have the effect of inducing patients to consult their doctors at an early stage of malignant disease in greater numbers than at present occurs. No doubt the general public has been largely educated to realise the importance of early diagnosis, and doctors are consulted early much more commonly now than was the case 20 years ago. But one still occasionally sees a breast containing a large mass of carcinoma which is ulcerating, and sometimes actually fungating through the skin. I think the delay in such cases is mainly due to the fact that many women look upon the loss of a breast with feelings almost of horror, and put off a visit to their medical attendant as long as possible. If women could be induced to seek advice directly they notice a lump in the breast the mortality from cancer would be greatly reduced. They could be assured that only in the event of an adverse verdict by the pathologist would a big operation be performed. Again, in view of the known facts that cancer arises in the great majority of cases in a breast already altered by inflammatory action, the small operation of local removal would prevent the formation of cancer in a great many women by getting rid of the precancerous focus.

I feel sure, therefore, that prompt and accurate diagnosis by means of the microscope may be a valuable and powerful agent in the fight against cancer.

From this standpoint, in early and doubtful cases, the surgeon is able to take up a firm and reasonable attitude which must have considerable weight with patients in inducing them to submit to early treatment, save them a great deal of anxiety and distress, and incidentally reduce the incidence and mortality of cancer.

Suggestion for a National Pathological Museum.

I should like to add a few words in favour of a scheme which has been in my mind for many years—viz., the establishment of a national pathological museum, to contain examples of every disease of which examples can be obtained, especially microscopic sections of the different tissues. All specimens should be fully described and accompanied by clinical histories, so that pathologists might turn to them for guidance in every instance where they come across a tumour which is new to them, and thus be enabled to place it in its proper group and give a prognosis. At present a pathologist is often unable to give precise information as to what course the case showing an unusual type of tumour is likely to take. Sometimes he can get this information from a brother pathologist, who happens to have met with a similar case, but very often he cannot do this. Then, again, pathologists often hold different views as to the nature of certain tumours and their probable course—i.e., malignant or innocent. Definite information on these points would therefore be obtainable in the records attached to the specimens in the proposed museum. The most important part in such a museum would be taken by microscopic sections; photographs or drawings should accompany each specimen, and a complete index should be made to facilitate rapid reference—something on the same lines as the "finger-print" records department of Scotland Yard. The museum could also be extended so as to include all varieties of bacteria. Such a museum would be analogous to the national collection of type cultures recently inaugurated by the Medical Research Council at the Lister Institute.

I am fully conscious of the difficulties to be surmounted in its formation, the main difficulty being that of finance, but it ought to be done. The investigation of the nature and cause of cancer would be helped enormously by the creation of such a storehouse of valuable material and information. In my own experience I often come across a section which does not fall into the routine groups, and after a period of puzzling and uncertainty I manage to recognise it by comparison with a similar specimen in my collection. At other times the nebulous picture of a similar specimen seen years before will not materialise and I am left helpless. I have then to do the best under the circumstances. In yet another case the microscopic structure of a tumour appears quite new to me. How helpful and comforting it would be to compare the section with others in the proposed National Museum! The above sketchy and disjointed remarks will, I hope, serve to draw attention to the project which I have so often thought about. It would take many years to build up such a structure, but the Museum of the Royal College of Surgeons of England would form a splendid nucleus.

Tabular List of Cases: Explanatory Note.

A note of explanation is necessary in several of the headings in the list of cases which follows.

Under mastitis are placed 41 cases entered in my earlier records as simply mastitis. Some of the specimens were indurated patches of breast tissue with no gross cysts, others contained tiny cysts visible to the naked eye. I had not realised at that time, or at any rate, had not considered it worth noting, that almost all breasts affected with chronic mastitis contain cysts ranging from a microscopic size to an inch or two in diameter. Cysts with papillomata projecting into the cavity, but not filling it, are separated from those cases in which the growths formed a compact mass entirely filling the cyst. In such specimens the tumour is often apparently a solid growth not definitely separable from carcinoma to the naked eye. In some of the cases of chronic abscess *Staphylococcus aureus* was isolated by cultivation. The two cases of lipoma occurred in the fat over the axillary tail of the breast and simulated breast tumours. The encysted remains of a silk ligature appeared as a nodule in the skin scar after removal of the breast for carcinoma.

List of Cases in which Fresh Sections were Prepared at the Time of Operation.

BREAST.	
Carcinoma (carc.) —	162
colloid	5
and duct papilloma	3
and fibro-adenoma	1
(both breasts)	1
in and about cyst wall	8
in left and cysts in right breast	2
of nipple	1
Fibro-adenoma	21
calcifying	2
Mastitis, solid	41
both breasts	1
Cysts	98
both breasts	1
and fibro-adenoma	2
and fibro-myxoma	1
and duct papilloma	8
and fibro-sarcoma	1
inflam. under nipple	2
Chronic abscess	9
Tubercle	1
Hæmatoma	1
Lipoma	2
Duct papilloma (solid mass)	5
Silk ligature encysted	1
Thrombosed vessels	1
Inflam. patches in fat	1
Total	382
Tongue—	
carcinoma	8
papilloma	1
simple ulcer	3
carc. and papilloma of cheek and lip	1
carc. and carc. of palate	1
Floor of mouth, carc.	4
Palate, carc.	2
Cheek, carc.	4
Carc. and simple ulcer of cheek	1
Lip, carc.	2
Carc. and T.B. glands	1
Tonsil, carc.	1
simple ulcer	1
Jaw (upper), carc.	3
sarcoma	2
(lower), carc.	4
fibroma	1
Maxillary antrum, simple polypi	1
Ear, carc.	1
Parotid, "mixed" tumour	1
Neck—	
glands, carc.	4
tubercle	1
simple inflam.	3
sarcoma	2
dermoid cyst	1
simple sinus after abscess	1
larynx, carc.	4
thyroid gland, sarcoma	1
adenoma	2
Axilla, enlarged inflamed gland	2
Arm—	
2nd sarcoma of deltoid	1
sarcoma of scapula	1
,, of humerus	1
2nd carc. ,,	1
chondroma of hand	1
papilloma of finger	2
ulcer (simple) of palm	1
Chest wall—	
rib, 2nd carc.	1
Abdomen—	
wall, fibro-sarcoma	2
omentum, carc.	2
,, chronic abscess	1
mesenteric glands, tubercle	1
stomach, chronic ulcer	2
gall-bladder, simple inflam.	1
vermiform appendix, simple inflam.	1
Pelvis—	
ilium, sarc.	2
Ovary, simple cyst	1
carcinoma	3
Uterus (body), carc.	5
"endometritis"	10
fibroids	3
(cervix), carc.	7
simple ulceration	1
,, polypi	1
recurrent carc.	2
Vagina, carc.	1
Vulva, ,,	1
Rectum, ,,	2
sarcoma	1
polypus	1
simple inflam.	1
Anus, colloid carc.	1
tubercle	1
Bladder, carc.	1
simple ulcer	1
Penis, carc.	2
simple ulcer	1
Testis, carc.	1
sarcoma	4
tubercle	1
fibrous inflam.	4
Spermatic cord, recurrent sarcoma	1
Inguinal glands	1
Skin—	
fibrous inflam. tumour	2
simple scar	1
fibro-myxoma	1
carcinoma	2
melanotic sarcoma	1
Thigh—	
sarcoma of femur	3
Knee—	
tubercle	1
Leg—	
sarcoma	1
Foot—	
sarcoma	1
papilloma of sole	1
Total	540

Method of Cutting Frozen Section of Fresh Tissues.

The method may be divided into two parts.

1. *Arrangement of Apparatus.*—The microtome is placed on a firm table and all the instruments arranged in a convenient manner. A mental survey of the freezing, cutting, mounting, and staining of a section is then made to ensure that everything is present and in its proper place and that no time will be wasted when once the process is begun.

2. *Preparation of Microscopic Section.*—

(*a*) The selected piece of tissue received from the surgeon is placed on the disc of the freezing microtome and is surrounded with gum solution.

(*b*) The tissue and gum are frozen and sections made by a razor on a carrier.

(*c*) The sections are transferred to a dish of cold water, and after separating them with a glass rod a suitable section is lifted out.

(*d*) The section is dipped for a moment into pure methylated spirit.

(*e*) The section is placed into another larger dish of cold water, and the currents set up by the spirit in the water cause the section to spread out flat.

(*f*) A glass slide is dipped in the water under the section, and the latter is lifted out as the slide is slowly drawn up out of the water again.

(*g*) The water is drained off the slide and a few drops of diluted stain (Löffler's methylene-blue, about 25 per cent.) are allowed to fall directly on to the section.

(*h*) A thin cover-glass is placed on the stain and section after several seconds; it is lightly pressed down so as to drive out excess of stain and flatten the section; the stain is blotted off, and the specimen is ready for examination under the microscope.

The above method is essentially the same as that which I originated in 1899. Two alterations were made some years ago: (1) Substitution of the ethyl chloride spray for the old ether apparatus—by this means a piece of tissue may be frozen on any flat piece of roughened glass, metal, or even wood; and (2) diluted stain instead of the full strength, which acted too quickly and gave very dense pictures.

Quite a small table will do to arrange the various instruments on, and this should be placed opposite a window if possible. I have had to fix up my apparatus in all kinds of odd places, such as the landing at the top of a flight of stairs, a board placed across an ordinary bath, the corner of an operating room, a rickety table in a small cottage, on a bed, &c. Most often one can commandeer a bedroom after the patient has been taken out to the operating room. Sunlight from a window is the best, but sometimes one has to trap a beam from an overhead lamp. A paraffin lamp in a house far away in the country caused me the greatest trouble. I have recently seen a new form of illumination in which an electric bulb is fitted to the substage reflector of the microscope; the current is supplied by a small portable battery. This ought to be very convenient. All my apparatus, including a folding microscope, is carried in a small bag.

THE CAUSES OF DEATH IN CHRONIC VALVULAR DISEASE OF THE HEART.

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THERE is a curious paucity of information with regard to the immediate causes of death in chronic valvular disease of the heart. We have been unable to find any literature upon the point, though the lesions themselves, their physical signs, their degree, and their complications are discussed in detail in innumerable papers. Allusion is made to the conditions which may induce failure: the activity of some new factor, in the heart itself or in some other organ, producing a disturbance of the cardiac action; the effects of acute inflammation of the valves or pericardium; the results of failure of the general or the cardiac nutrition; the influence of an abnormal rhythm of the heart, excessive exertion, renal disease, mental shocks, &c.; but no figures are given to indicate the relative importance of the various factors. But, if our prognosis is to be even approximately accurate and our treatment rational, the relative importance of these factors must be known, so that we may devote our attention to those which are most common, and by preventing or delaying their onset, postpone indefinitely the advent of the end.

This paper is an attempt to throw some light upon the problem. We had at first intended to collect a large number of clinical records, but a little consideration showed us that such an investigation would be useless on account of the difficulty, in chronic valvular disease, of recognising the presence of a fresh subacute endocarditis. We have, in consequence, examined those records alone which were followed by a post-mortem examination. The series thus numbers only 100, but it was collected in one set of wards by the same observers. In these 100 cases valvular disease of some kind was found to be present upon post-mortem examination. In 19 cases the valvular lesions were purely acute, while in 81 they were, in part at any rate, chronic (see table).

Post-Mortem Records, 1906–21.

Age-incidence.	Male.	Female.	Age-incidence.	Male.	Female.
1–9	1 ..	—	60–69	5 ..	1
10–19	7 ..	8	70–79	1 ..	—
20–29	9 ..	7	Age unknown	2 ..	—
30–39	11 ..	11		58	42
40–49	13 ..	9		100	
50–59	9 ..	6			

Endocarditis (E.).	Mitral.	Aortic.	A. and M.	Other valves also.	Total.
Acute E. only ..	3	6	5	5	19
Chronic E.	35	18	21	7	81
—	38	24	26	12	100
Chronic E.:—					
With acute E. also	15	3	16	5	39
Without acute E.	20	15	5	2	42
—	35	18	21	7	81

Cases of chronic valvular disease without acute endocarditis, 42.

Pure Acute Endocarditis.

The first group of cases of acute endocarditis may be briefly reviewed. Four patients were suffering from chorea, and two from acute rheumatism, the endocarditis being merely a part of a general infection. In two cases it was a complication of pneumonia. In one it was a part of a general sepsis, occurring post partum in a woman suffering from phthisis. In eight cases it arose insidiously, associated in three cases with a pulmonary catarrh, and in one following closely upon an attack of encephalitis lethargica. In two cases no useful history was available. There remain for consideration 81 cases, all of which showed a chronic valvular lesion of some description.

Chronic Valvular Disease.

In 39 of the 81 cases of chronic valvular disease an *acute* or *subacute* endocarditis was found to be also present. In one case no history of the fatal illness was available. In the other cases the onset of symptoms was more or less abrupt in 13, and insidious in 25. In the first group the endocarditis followed acute pneumonia in two patients. In one, a woman aged 56, the earliest symptom was a "shock," due to embolism, on the morning of the day on which she died. In one, a man aged 37, the first symptoms were noticed one morning when he rose from bed, and, rapidly becoming extreme, led to his death five weeks later. Symptoms followed attacks of acute rheumatism in seven patients, arthritis of obscure origin in one, and the extraction of a carious tooth in the last. In the second group the onset of symptoms was insidious and progressive.

The association of acute endocarditis with such acute infections as pneumonia and post-partum sepsis is, of course, well known, but it is apt to be forgotten that it may follow sepsis in almost any organ of the body. In this series the fatal illness was probably due, in individual cases, to infection from a very offensive atrophic rhinitis, an otitis media, tonsillar infections, cholecystitis, a chronic gastric ulcer, a chronic dermatitis, and pulmonary and uterine infections. In one case a cancerous ulcer of the stomach, a tuberculous focus in the lung, and sepsis

in the urinary tracts, offered a choice. It is, too, worthy of note that only nine of these 39 cases showed organs that were not affected by pathological lesions quite independent of those which were the results of the cardiac disease. The vast majority, of course, showed sepsis in the tonsils and around the teeth.

The immediate cause of death in acute endocarditis is very varied. In some cases the endocarditis is merely a part of a general infection. In others infarcts may cause death. In the majority, however, the cause of death is cardiac failure on account of the associated myocarditis. The frequency of cerebral lesions in acute endocarditis seems to have been underestimated. In the whole series, 19 cases of pure acute endocarditis and 39 cases of acute endocarditis engrafted upon a chronic valvular lesion, 58 in all, 13 cases showed gross cerebral disease, softening in 6, meningitis in 4, hæmorrhage in 3.

Chronic Valvular Disease Without Acute Endocarditis.

There remain for consideration 42 cases of chronic valvular disease in which acute endocarditis was *not* present. In two cases the history of the fatal illness was imperfect, and the cause of failure unknown. One patient, a man, aged 62, had been suffering from shortness of breath upon exertion for many months. The aortic valve was incompetent, the pericardium adherent, the lungs emphysematous, and the kidneys fibroid. The other, a man, aged 42, had disease of the aortic and mitral valves and fibroid kidneys. On admission into hospital he did not appear to be seriously ill, but acute œdema of the lungs ensued shortly afterwards, and he died within two hours. In six cases death occurred as the result of causes other than cardiac. One patient died from acute meningitis associated with a cerebral abscess, the sequel of a chronic otitis media. One died during an attack of acute rheumatism, one from purpura hæmorrhagica, one in uræmia, the result of an exacerbation of a chronic nephritis of seven years' standing; two died from pneumonia, associated in one case with aortic disease and phthisis, and in the other, a mitral case, with gonorrhœa.

Eleven patients dated the commencement of their cardiac symptoms to some definite extrinsic cause. A patient with aortic disease stated that he had never been well since an attack of influenza. Another aortic patient, an alcoholic who had suffered from syphilis and had made a good recovery from an hepatic abscess, suffered from his first symptoms after a cold; and a mitral patient gave a similar story. A mitral patient died from cardiac failure which followed a prolonged attack of vomiting due to a duodenal ulcer. An aortic patient stated that his cardiac symptoms arose after he had sustained a compound fracture of his leg. A mitral patient dated the onset of symptoms to her second attack of rheumatism two years prior to her admission to hospital, while her distress had been greatly aggravated by dancing for many hours one evening. Another patient was never well after her last confinement four years previously, the symptoms being exaggerated by heavy work necessitated by a drunken spree of her husband. A mitral case, of 20 years' standing, ascribed the onset of her symptoms to starvation and overwork. An aortic case broke down after a skating party; a mitral case after one severe exertion. The last case illustrates the strain which is thrown upon the heart by acute bronchitis. The patient, a foreman with a firm of horse dealers, took a shipload of horses to Canada for sale. On Sept. 21st he ran the horses in the show ring without distress. On the voyage home bad weather was encountered and his cabin was flooded on Sept. 27th. Bronchitis ensued, and *two days later his legs became œdematous.* On his admission into hospital cardiac failure was extreme, but though he improved considerably he never regained his health, and died a year later.

In the remaining cases, 23 in number, it is evident that for some time before the fatal illness some symptoms of cardiac insufficiency had been present, though they were not sufficiently severe to incommode the patient greatly. In 13 cases pulmonary symptoms were urgent at the end. Infarcts were found in the lungs in five cases, accompanied in one by pneumonia, and in another by gangrene. Bronchitis was present in eight cases, in two of which pneumonia preceded the end. But most of these patients had multiple lesions in the other organs. The pericardium was adherent in four patients, and acutely inflamed in another. The kidneys were fibroid in six cases, and showed infarcts in one more. One patient had a cirrhotic liver, one a tuberculous tumour of the colon, another suffered from paralysis agitans. In no instance was the heart the only damaged organ in the body. In four patients a "shock" was the first symptom of importance, the result of hæmorrhage in one case, and of embolism in two. In the fourth, where the left arm became suddenly weak while the patient was walking on the street seven weeks before her death, and another shock occurred six weeks later, no gross lesion of the brain was discovered at autopsy, the brain being rather small and notably œdematous. In four cases, two mitral and two aortic, death ensued after a progressive cardiac failure for which no particular cause could be found. In three of these patients infarcts were present in the lungs. In the other pericarditis occurred before death, and the kidneys proved to be fibroid.

Paroxysmal Tachycardia.

The incidence of disturbance of the cardiac rhythm was rather striking, 21 of our cases showing this phenomenon in some form. In one case death ensued as the result of recurring attacks of paroxysmal tachycardia.

The patient was a labourer, aged 38, who had aortic valvular disease, probably of syphilitic origin, an atheromatous aorta, renal calculi, and cirrhotic kidneys. His earliest complaint was of attacks of palpitation, which at first were generally nocturnal. They occurred about once a week and lasted for an hour or two. But as time went on they became more frequent and of longer duration, and he became short of breath upon exertion, and so weak that he was forced to take to bed. When first seen he was very ill, in full orthopnœa with laboured cyclic respirations. His pulse was shotty and regular and numbered 88. In ten days improvement was distinct and he was able to lie down in bed, breathing easily. But four days later an attack supervened, the pulse numbering 152–180. It lasted for eight hours, and all his old distress at once recurred. Some improvement followed, but not so great as after the first attack. A few days later another attack occurred, and, though it only lasted for an hour, greatly intensified his discomfort. In the evening another attack supervened, the pulse running about 200. The cyanosis became extreme, the dyspnœa urgent, and after three hours his heart ceased to beat.

We have seen several other cases of this description.

A married woman, aged 27, who had a mitral lesion of rheumatic origin, dated the commencement of her cardiac symptoms to attacks of palpitation. The attacks recurred, œdema made its appearance, and she was forced after some months to take to bed. On admission into hospital the lungs were congested and the feet œdematous, and the urine contained much albumin. The pulse was small and weak, quite regular and numbered 80. A short paroxysm a few days after admission, though it only lasted five minutes, greatly intensified her distress. Two days later another paroxysm ensued, the pulse running about 150–170. The breathing was frequent, and at short intervals attacks of intense breathlessness occurred, lasting for several minutes and notably increasing her discomfort. After a few hours the pulse became imperceptible, the extremities cold, and the urinary output less. She died suddenly after the attack had lasted for 56 hours.

Another patient, aged 53, had a mitral lesion and chronic bronchitis. She contracted an acute bronchitis and her cough became very troublesome and accompanied by vomiting, so severe as to interfere with her nutrition. When first seen she was very weak and ill, the countenance livid and congested, the extremities œdematous, the liver large and tender, the abdomen swollen with ascites, and the urine loaded with albumin. She had to sit bolt upright in bed. The pulse was small and feeble and numbered about 200. The paroxysm passed off, and she made some improvement, the vomiting ceasing and the pulse running about the normal rate and improving in quality. But the attacks of

cough recurred, the face becoming enormously swollen and extremely livid during their continuance, while the jugular veins dilated to many times their normal size. The pulse became tiny and uncountable and very frequent, but it resumed its former characters as soon as the cough ceased. A few days later it was noticed that the tachycardia after an attack of coughing continued and her discomforts were not relieved. In the night the normal rhythm returned and for the first time a few extrasystoles were recorded. But the respite was short, for next day the tachycardia returned, the pulse numbering about 230; her weakness steadily increased and she died after the tachycardia had lasted for 47 hours.

The mechanism of cardiac failure in these cases is clearly revealed by graphic methods. In the majority, at any rate, of these cases the new rate of the pulse is due to the inception of a new *rhythm*, the stimuli arising in the vicinity of the auriculo-ventricular node instead of at the sino-auricular node, and exciting the auricles and ventricles to contraction simultaneously instead of in sequence. As the ventricle is in contraction at the time of the auricular contraction, and the auriculo-ventricular valves are in consequence shut, the ventricular output is lessened, and the pulse loses in volume and in force. The auricular contractions, too, can only drive the blood backwards into the veins instead of forwards into the ventricles; venous stasis is thus initiated, which, if the paroxysm is of long duration, rapidly becomes serious, the lungs and liver becoming engorged and œdema making its appearance in the feet. It must also be borne in mind that a similar state of affairs occurs whenever the pulse-rate rises to 150 or over, even though the rhythm is unaltered, for at this rate diastole is so short that auricular systole occurs *before* the preceding ventricular contraction has ceased, and stasis in consequence ensues. We do not yet know the exact causes of paroxysmal tachycardia. The sudden commencement and cessation of the attacks suggests a nervous, or a functional, cause. But it seems probable that some underlying myocardial lesion in the vicinity of the auriculo-ventricular node makes this area hypersensitive to nervous influences. A comparable auriculo-ventricular rhythm, *nodal rhythm*, has been found to be associated with acute inflammatory lesions in these parts, but the altered rhythm in these cases is continuous and not paroxysmal.

Many patients suffer from paroxysmal tachycardia for many years without serious result if their hearts are clinically structurally sound. But the onset of attacks in patients with hearts already strained by valvular disease, particularly if the muscle is also involved, adds greatly to the danger. The complication, however, is by no means constant.

Heart-Block.

In one case death ensued in a patient who had full heart-block. Heart-block, however, is not necessarily accompanied by symptoms of cardiac failure, though their occurrence is the rule. It is generally the result of a myocardial lesion which happens to hit the auriculo-ventricular bundle. In the majority of these patients the myocardium generally is severely damaged, but this is by no means necessary, and if the lesion is small the heart may be able to do its work reasonably well even for years. Sir William Gairdner, for example, had complete heart-block for at least four years before his death, during which time he was able to live fairly comfortably without any signs of cardiac failure. One of W. T. Ritchie's patients lived for ten years. But in the majority of these patients a widespread myocardial lesion is present, and death ensues rapidly on account of the extent of the muscular damage. Heart-block, of itself, does not interfere with the cardiac work to any measure comparable with the interference produced by paroxysmal tachycardia.

The striking phenomena of disturbance of the cardiac rhythm have perhaps led us to attach too much importance to this condition as a cause of cardiac failure. In nodal rhythm, of course, whether paroxysmal or continuous, the onset of failure may be very abrupt as the direct sequel of the change of rhythm, and the consequent simultaneous contraction of auricles and ventricles. In heart-block and in extra-systole a synchronous contraction of these chambers may also occur, but only occasionally, and the forward progress of the blood is but little hindered. Heart-block, as we have seen, is not necessarily accompanied by grave cardiac failure. Extra-systoles have no evil significance. In auricular fibrillation the cardiac work is always hindered, for, as the auricular contractions are in abeyance, the normal filling of the ventricles is incomplete, while their contraction, irrespective of their content, leads rapidly to arterial anæmia. The nervous control, too, is in abeyance, and the ventricular activities are no longer accurately correlated to the needs of the tissues. But even in fibrillation the cardiac work may be accomplished without much difficulty and one of our patients, a miner, worked at the pit-head for six of the nine years that his auricles were fibrillating. In auricular flutter evidences of cardiac insufficiency soon make their appearance if the ventricular contractions are frequent, but may be absent if, as is sometimes the case, the ventricular rate is about normal.

In this series of 42 cases disturbance of the cardiac rhythm was not infrequent. Full heart-block and paroxysmal nodal rhythm were present in one case each, extra-systoles were recorded in four, and auricular fibrillation in 15. But in another 15 cases the records show that the rhythm throughout was perfectly normal. In six more no irregularities are noted. It is also clear that in some cases the disturbance of rhythm is merely a by-product of a widespread myocardial lesion, which in itself is producing serious failure. The relationship may be clear from clinical observation alone, and may sometimes be inferred from post-mortem findings.

Alteration in Heart Muscle.

The most important cause of cardiac failure is that due to alterations in the muscle of the heart. One is apt to forget that the condition of the systemic muscles is repeated in the muscle of the heart, and that the flabby muscle of the legs which prevents exercise is associated with a cardiac muscle of like nature. Granular and fatty changes, atrophy and fibrosis, occur in the heart, as elsewhere, from general and local causes. They may be due to anæmia of local or of general origin; infections, whether local or general; local and general intoxications. Of all possible causes those which affect the cardiac valves and the cardiac arteries are those which affect most constantly and in greatest degree the cardiac muscle, but general causes invariably produce some local result.

The figures which we submit correspond with our theory. Of these 81 cases of chronic valvular disease the cause of failure was in two cases unknown. In six cases death ensued from causes quite distinct from the cardiac disease. In 11 cases cardiac failure followed the activity of factors outwith the heart. Of the other 62 cases, in 49 the heart itself seemed to be the prime factor in the failure, and *in 39 of these an acute endocarditis was present at death.* The commonest cause of cardiac failure in chronic valvular disease seems thus to be an acute re-infection of the cardiac valves. Acute endocarditis is most common in rheumatic patients, and least common in syphilitic patients. Of our 58 cases of acute endocarditis, 19 purely acute and 39 associated with chronic lesions, 32 were rheumatic and only one syphilitic. One patient had suffered from both diseases. The immediate cause of death in cases of chronic valvular disease is varied. In some a general sepsis is present, in some embolic lesions in the organs occasion death, in some the valvular fault progresses beyond the point where compensation can be effected. But in probably the majority the cause of death is muscular weakness from the associated myocarditis. If subsequent investigations prove that our conclusions are correct, which we have no reason to doubt, the treatment of chronic valvular disease must be greatly altered.

It is manifestly necessary to restrict physical exertion in cases of acute endocarditis during the progress of the acute infection, as well as in those chronic cases in which symptoms of cardiac failure are already manifest. But our figures show that in chronic valvular disease death usually occurs as a result of the activity of factors arising without the heart, of which over-exertion is the least common and infection the most common. So, if we are to obtain the maximum success in the treatment of our patients, we must encourage them to the utmost activity that their cardiac disability permits, and endeavour in every way to keep them fit. The details of the process will necessarily vary, but if the principle is accepted the detail is easy to envisage and to pursue in the individual case.

The second indication is to eradicate as rapidly and as efficiently as possible every source of sepsis in the individual. A wide outlook is necessary, for the sources of sepsis are numerous and varied. Mouth, throat, nose, ears, gastro-intestinal tract, bladder, uterus, gall-bladder, urinary tracts, must all be examined, and any infection radically treated. And if success follows our endeavours our patients will lead more happy, more healthy, and longer lives.

OBSERVATIONS UPON CARDIAC RHEUMATISM OF CHILDHOOD.

BY MARTIN O. RAVEN, M.B., CH.B. OXF., M.R.C.S. ENG.,
MEDICAL OFFICER OF HORSFALL WARDS, BROADSTAIRS.

THE following notes relate to 24 cases which have during the last 14 months received treatment, in a seaside medical ward, for rheumatic disease of childhood, with reference to the condition of their hearts. The view taken of rheumatism has been that it is a chronic infection, comparable to tuberculosis, attacks of arthritis and chorea being merely symptoms of the underlying disease, and the scheme of treatment has accordingly been based on the assumption that where there have been recent symptoms of active disease, it will take time, rest, and fresh air to effect a cure.

The cases are divided into four classes: 1. Those showing damage to the heart so extensive as to make the survival of the patient impossible or extremely problematical (five cases). 2. Those showing signs of endocarditis, but in which there is every hope that an active life may result (four cases). 3. Those in which the damage to the heart has been slight, and the endocardium spared, and in which, if the infection is cured, a normal individual should result (eight cases). 4. Those who have had rheumatism, but no signs of heart disease (seven cases).

The average stay of the cases has been four and a half months, the actual periods of treatment varying from a few weeks to 14 months (treatment uncompleted).

1. *Extensive Damage to the Heart.*

Of this class, one case was removed and was lost sight of; two died within two months of admission with all the symptoms of heart failure, following upon extreme myocardial disease and multiple endocardial lesions, and with pyrexia and intense anæmia. Both had had quite inadequate rest, following on repeated attacks of arthritis, previous to admission. The other two cases are still under observation, having been kept continuously at rest for 12 and 8 months respectively. On admission each had anæmia and symptoms of heart failure, following upon repeated attacks of arthritis. The first child had aortic regurgitation, and, with mitral regurgitation and mitral stenosis (presystolic murmur), hypertrophy and dilatation of the right heart; the pulse was between 130 and 140. The second child had an enormous heart from hypertrophy, following upon chronic adhesive pericarditis, together with signs of mitral endocarditis; the right auricle was very greatly dilated, and the heart beat tumultuously and always over 120. As a result of practically continuous recumbency, both cases have made excellent progress. The damage to their hearts is, of course, permanent, but the anæmia has disappeared, and the pulses, though very excitable, are often counted at about 84. The improvement is such that one would be tempted to hope that the rheumatic infection had been stamped out, but for the fact that during the last two months each child has had an acute pyrexial attack, taking the form in the first case of an acute tonsillitis, and of præcordial pain in the second, making it seem probable that further attacks of rheumatic origin —tonsillitis and pericarditis—have occurred. In spite, therefore, of the benefit accruing from prolonged treatment, the latent existence of the original infection must still be suspected, and beyond this there is still the question of the ultimate capacity of these damaged hearts to support lives sufficiently active to be useful.

It is obvious that, were there adequate provision for the treatment of every case of early rheumatic infection, hearts of this type would not be met with, but until the disease is made notifiable, and institutions are provided for their observation and treatment, there seems no possibility of control of rheumatic heart disease. I may also remark here that, in contrast with tuberculosis and syphilis, where bacteriological examination and serological tests give great assistance both in diagnosis and control of treatment, there is no known laboratory method by which the virulence of rheumatic infection, or even its existence, may be gauged, and we are entirely dependent upon clinical symptoms and signs, the correct interpretation of which is by no means certain. This general position indicates the great need for bacteriological and serological research in rheumatic disease; a laboratory devoted to examination of rheumatic patients from a pathological aspect would have no lack of material to draw upon.

2. *Endocarditis with Hope of Active Life.*

These cases are perhaps the most interesting. They all four presented on admission signs of damage to the mitral valve, as indicated by a diastolic bruit audible at a point just internal to the apex of the heart, and usually heard just before the second sound: this murmur probably indicates the presence of an active, quiescent, or healed vegetation on the mitral valve, and I have seen it develop into a proper presystolic murmur of mitral stenosis in the case of a boy who was insufficiently rested for a period of 12 months following the original attack. The most important fact about this diastolic bruit is that if the patient is put to rest early enough and for long enough, it may disappear altogether. This has happened in three of the four cases I am describing here. All these were admitted with anæmia, slight pyrexia, rapid, excitable pulses, and cardiac dilatation; all had mitral regurgitant murmurs also; one had chorea.

The disappearance of the diastolic bruit took place slowly (in one case it took six months), and with its disappearance, the rapid pulse became normal, the anæmia vanished, and in one case the heart shows to-day no abnormal signs at all. The other two cases, though apparently quite well in other respects, have a hypertrophied heart and a systolic murmur respectively. In the fourth case, still under recumbent treatment, the diastolic murmur is quite unchanged. Whether the disappearance of this bruit indicates that the mitral valve is now quite normal only time can show. Mitral stenosis is a progressive lesion, and we come across many people later in life whose hearts show presystolic murmurs and who have had no symptoms for years while the valve must have been narrowing.

3. *Slight Damage, without Endocarditis.*

Into this class I have put those cardiac cases showing no evidence of endocarditis. Several of them, however, had dilatation of the heart, probably indicating recent rheumatic myocarditis, and most of them had

the systolic murmur of mitral regurgitation. With complete rest for from four to eight months, these murmurs have completely disappeared in three out of eight cases, and the signs of cardiac dilatation have decreased. A variation in the cardiac dullness from day to day is an important sign that more rest is required, or that a child is being allowed to get up too soon.

4. *Rheumatism with No Signs of Heart Disease.*

These cases were those who had had in the past attacks of arthritis, but whose hearts were quite normal on examination. Some had had chorea. They were kept at rest for a fortnight, and then allowed to live a quiet life under observation for six weeks or more, and were then allowed to return home. One hopes that in these cases even a short fresh-air existence may have obviated the likelihood of further attacks of the disease.

Treatment.

Recumbency, fresh air, and warmth have been the chief aims. The worst cases have been kept strictly recumbent against bed-rests for from 8 to 14 months: the others have been allowed to get up little by little, as the symptoms subsided, beginning at a quarter of an hour a day and working up gradually to a full day before discharge; then they have always been sent back to the hospital or physician that sent them for further observation.

Prognosis.

It is difficult, in view of the obscurity of the ætiology of the disease, and the absence of laboratory aid, to determine the existence or virulence of infection in any given case. The clinical indications are many, but some are uncertain in their import. A *normal temperature*, for instance, is no indication that infection is stamped out: possibly the rectal temperature, as has been suggested, would be more useful, but it has not hitherto been practicable. *Chorea* also is a most uncertain symptom: well described as a nervous symptom in a rheumatic child, it is no indication of the virulence of the infection. This statement is borne out by the case of a child who had made excellent progress from the point of view of the heart; her chorea was quite in abeyance, when, on being visited by an anxious mother one day, all her choreic movements returned; not only this, but three children in adjacent beds acquired the symptoms also for a few days. But the progress made by the heart was quite unchanged throughout the attack.

The chief indications of definite improvement with regard to the combating of the infection seem to be, first, the disappearance of the anæmia, and secondly, the alteration in the abnormal signs of the heart. Of the latter, I would like again to lay stress especially on three: (i.) Rapidity and excitability of the apex beat and pulse; (ii.) the diastolic bruit above referred to; (iii.) cardiac dullness, especially when varying from day to day, or on a slight additional degree of bodily exertion.

Conclusion.

Although the number of children under observation has been small, there can be no doubt, from the progress they have made, of the desirability of prolonged recumbency in every case of cardiac rheumatism, and that the earlier this treatment is initiated, the less prolonged it is likely to have to be. Compared with a policy of physical and emotional rest, fresh air, and warmth, such influences as climate cannot be taken into much account; similarly, treatment by drugs, useful though they undoubtedly are—particularly salicylates, digitalis, and opium in appropriate cases—is properly regarded only as accessory to a general management on these lines. But in the case of poor folk, at least, this policy can only be attempted if institutions are devoted to the observation and treatment of the disease; and rheumatic carditis, owing to its insidious mode of onset, will never be prevented from permanently undermining the health of children, unless it is by means of notification brought under the eyes of responsible medical officers in its early stages.

Clinical and Laboratory Notes.

A NOTE ON ANTHRAX INFECTION BY SHAVING BRUSHES.

BY F. A. KNOTT, M.D. LOND., D.P.H.,
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RECENTLY, whilst I was examining a shaving brush which belonged to a sailor who, shortly after rejoining his ship, had developed a typical anthrax pustule, a possible fallacy came to my notice. The man had bought and used the brush while on leave, and its hairs contained virulent anthrax bacilli. A number of brushes from the same manufacturing source were tested, with negative results in all, yet no other likely source of infection could be discovered. Did the brush infect the patient, or did the patient on the last occasion of shaving infect the brush? As far as I know, the point was never fully cleared up. The *free* hairs of his brush gave a strong growth of anthrax, whereas those *embedded* in the handle were sterile. It is commonly held, in such circumstances, that the brush was probably infected *after* manufacture, and it is officially advised that only by examination of the stump hairs is reliable indication of the manufacturers' use of infected hair obtained.

Nevertheless this inconclusive case prompted a brief experiment. By melting the fixative out of the handles of a considerable number of cheaper shaving brushes bought at random in London, one was able to determine its melting point. In most instances a temperature of 145° C. was reached before this substance was sufficiently fluid to be of the least use in resetting the hairs in the handle. The required level was never lower than 130° C.

To test the point more fully, I set out, with the assistance of Mr. J. McLean, to deal with a number of experimental brushes by the following method:—

(*a*) To take the place of the handle the lower 1½ inches of a common glass test-tube was cut off and sterilised. Into ten of these, fixative taken from actual brushes was placed and just melted (140° C.) on a hot plate. Previously a series of short bundles of autoclaved shaving-brush hairs had been heavily infected at the lower ends with a thick suspension of living anthrax spores. These bundles of hair were thrust into the just molten fixative in the test-tubes, the tubes immediately removed from the hot plate, and the fixative allowed to set. Next morning these experimental "brushes" were broken up and the stumps incubated in nutrient broth. In no case did *B. anthracis* develop. A control "brush" was made, agar being used instead of fixative; from this anthrax developed next day quite readily.

(*b*) A number of actual brushes, from which the fixative had been completely melted out and the stump hairs loosened as far as possible, were next autoclaved and placed, base upwards, in a rack. The bottom of the handles having been removed, on to the lower ends of stump hairs so exposed 0·1 c.cm. of a suspension of resistant anthrax spores was dropped, and allowed to remain three minutes. Fixative (temperature 140° C.) just liquefied was next run into each handle, enveloping the base hairs and coming up to that level actually adopted by the manufacturers. These brushes were allowed to stand over night, and next day the stumps were aseptically broken up, extracted, and incubated at 37° C. in broth. At the end of 72 hours in no case had anthrax developed.

The only conclusion to be drawn is that the process of fixing the stump hairs of these brushes with a hot glue-like substance often effectively sterilises the portions of hair so fixed. If the fixative has a sufficiently high melting point, say 140° C., to resist boiling water, any bacteria or spores present in the hair before manufacture will frequently not appear in cultures made from the stump. If anthrax or other organisms *do* develop from these embedded stumps one can safely assume that they were originally present in the hair. But when the stumps remain sterile one cannot apparently conclude that

the hairs were sterile in their original state—i.e., before manufacture of the brush.

The observation is made since an idea appears to be prevalent that the correct way to examine a shaving brush bacteriologically is to seek for anthrax in the stump. The presence of the organism in this site is admittedly almost conclusive evidence of the manufacturer's use of infected hair, but where the stump does not contain anthrax, and the free hairs do, it cannot with equal certainty be assumed that the hair originally employed was not anthrax-infected.

A CASE OF EXTRA-UTERINE PREGNANCY.

BY A. McMURRAY, F.R.C.S. EDIN.,
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THE following is a rather unusual case of extra-uterine pregnancy:—

The patient was seen in the morning by Dr. A. Leigh, in consultation with Dr. G. A. Paulin, of Malpas, and was operated on by Mr. C. Dobie at the Royal Infirmary, Chester, the same afternoon. She had had previous pregnancies, and the present pregnancy was of about eight months. At the third month she had a slight show, otherwise during the whole eight months she enjoyed excellent health. The evening before she had felt the fœtal movements more marked, with pain in the right side. During the night pain was more acute and she felt very faint. At operation an almost full-term child was found floating about in an abdomen full of blood. The placenta was well confined to the right broad ligament. The membranes were extremely thin and only adherent in one small spot to the omentum. The uterus was the size of a two and a half months' pregnancy. Both mother and child died.

It is somewhat exceptional for a woman who does heavy household work to progress to full term without showing any symptoms or signs.

A CASE OF RETROPERITONEAL FIBROMA ARISING FROM THE ANTERIOR COMMON LIGAMENT.

BY W. H. OGILVIE, M.CH. OXF., F.R.C.S. ENG.

THE interest in the following case is in the rarity of the condition. The presence in a woman of 55 of a large mass in the abdomen, quite fixed and of almost stony hardness, made malignant disease the only reasonable diagnosis. On the other hand, there was no point in the history, symptoms, or pre-operative findings, to indicate the organ involved. Operation was undertaken purely for purposes of exploration.

The patient, a thin married woman, looking more than her age of 55 years, came up to surgical out-patients complaining of a throbbing sensation in the upper abdomen, which she had noticed for three months. This was the only thing of which she complained. There had been no vomiting, loss of weight, or pain, nor had she noticed any lump. All her bodily functions were normal.

Condition on Examination.—A prominence was immediately visible, occupying the left upper quadrant of the abdomen. This proved on palpation to be a hard solid mass roughly oval in shape, firmly fixed to the posterior abdominal wall. It reached inwards to the mid-line, downwards 2 inches below the umbilicus, while above it appeared to pass under the costal margin. It formed no prominence in the loin, did not move on respiration, and could not be moved passively. On percussion, the splenic dullness appeared to be continued into that of the lump; over the most prominent part there was a band of resonance. Urine normal; fæces gave a weak guaiac reaction, but no blood spectrum; Wassermann reaction strongly positive. X ray examination showed the stomach displaced downwards and outwards by a large mass in the region of the lesser omentum, suggesting a pancreatic cyst.

Operation.—Laparotomy (May 25th, 1922) through a left paramedian incision. The stomach, splenic flexure, and descending colon were seen to be carried forward on a large retroperitoneal mass, over whose summit ran the inferior mesenteric vein. The left kidney could be felt behind the upper pole of the swelling. An incision was made outside the descending colon, and the peritoneum and vessels displaced inwards as far as the aorta. A smooth, oval tumour, 2½ by 4 inches, was thus exposed, surrounded by a distinct capsule, and firmly attached to the bodies of the second and third lumbar vertebræ. Three of the lumbar arteries entered the mass, and the aorta was pushed slightly to the right. The lumbar arteries were ligatured at their origin, the tumour separated by the knife from the anterior common ligament from which it appeared to spring, and shelled fairly easily from its capsule. The wound was sewn up, a drain being left in the extraperitoneal tissues for 48 hours. Microscopic section showed the tumour to be a fibroma, with much necrosis.

Recovery was uneventful, the patient leaving the hospital perfectly well.

I am indebted to Mr. R. P. Rowlands for permission to publish this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

LATE RESULTS OF ENCEPHALITIS LETHARGICA.

THE meeting of the section for the Study of Disease in Children of the Royal Society of Medicine, held on Jan. 26th, was devoted to a discussion of the late results in sleeping sickness, with an exhibition of cases illustrating various features of the disease. Dr. ERIC PRITCHARD, the President of the section, occupied the chair.

Demonstration of Cases.

Dr. R. C. JEWESBURY showed two cases. The first patient, aged 4 years, was normal to the end of his first year. Then he had an illness which was accompanied by a progressive weakness of limbs, and he became unable to sit up unassisted, or even to hold up his head. Three months after the illness began he was brought to hospital, and his temperature ranged between 104° and 105° F. He had marked hypotonia, tendon reflexes were absent, and there was slight internal strabismus. He developed tetany of the hands. The cerebro-spinal fluid appeared normal, and the Wassermann was negative. There remained a marked spasticity of limbs, he could neither sit up by himself nor stand, the reflexes were all exaggerated, and the plantar response on both sides was extensor. His mentality was very clear. The other patient, a girl, aged 10, was thought to have had an attack of meningitis in 1918, and after it she lost power in the limbs, and was unable to speak for five months. She was left with a very definite incoördination, and at the time of her illness the muscular tone was increased. When seen by the exhibitor there was but little unusual in the nervous system to be made out. The chief sequel was ataxy, which was still very pronounced; she also had tremor of the intention type. Though until her illness she was bright, she was now mentally backward, and was attending a special school.

Dr. H. C. CAMERON showed three cases, and referred to a brother of one of them who had no after-effects. In one of his cases the first idea was that the illness was botulism, but later it was recognised as sleeping sickness. The case was now spastic and mentally backward. Other two cases had made a fair recovery, but when the hands were held out they behaved like those of a case of chorea. At night they had a restless phase and at times there were bouts of noisy breathing, with flushed face and cheeks puffed out.

Dr. F. J. POYNTON showed eight of his 14 cases. These he grouped into four classes. In the first (three cases) there had apparently been complete recovery, though the diagnosis was very definite. The second group consisted of those who had recovered, but self-control was deficient: they were emotional, or kleptomaniac, or immoral in some other way. This was, he said, a very important class, as, owing to the disease, there were children who were liable to commit

various offences. In the third group, in addition to mental impairment, the children had choreiform or athetoid movements. Those in the fourth group were of the Parkinsonian type; like paralysis agitans, they had tremor, rigidity, a toneless voice, slow speech, mask-like face, salivation, and increased reflexes. He had five of these cases, and all were inmates of asylums.

Dr. CROWLE showed two cases of the Parkinsonian type. The disease was not recognised, and they came under her care two years afterwards. One was a girl, aged 17, sent home from work because she was biting the inside of her lips and could not be checked. Some considered she had a peculiar form of influenza, others that she was the subject of hysteria. Her temperature was up, and she had attacks of rapid breathing and some diplopia, and was said to have been unconscious a week. The illness was ushered in by some days of insomnia. Excessive salivation was long a trouble. Mentally she was quite alert, but her movements were unnaturally slow. The second patient, a girl aged 21, who had her illness in 1920, was supposed to have dementia præcox. Her condition had never been recognised as an illness, she had not been in bed because of it, and even during her insomnia she continued to go to her work, but became very sleepy over it. She took a holiday, but continued to get up daily and to fall asleep over whatever she might be doing. Three months after returning to her work (clerking) she noticed she was very slow over her figures, and her muscular responses were also very sluggish. She was not mentally dull. After six months the sleepiness gradually lessened. She now showed the mask-like face and had some tremor of the left leg, with salivation and hesitation in speech.

Dr. E. A. COCKAYNE showed a girl, aged 12, whose illness began with diplopia and weakness of the left arm. She now had continuous rhythmical movements of the upper lip on the left side; this quickened when she was tired, and during sleep. Since the illness her disposition had definitely changed for the worse, and while at school she had periods of extreme sleepiness, during which she was indifferent to all that went on around her.

Dr. C. P. SYMONDS showed a boy whose history it was difficult to ascertain. The mother said he became very drowsy, and as he later developed twitching movements he was admitted to an infirmary as a case of chorea. He remained six months, and then was noticed to have nocturnal restlessness, and now was of the Parkinsonian type, and subsequent changes so affected his mentality that he was now an inmate of an asylum. He was now sleeping well.

Dr. C. WORSTER-DROUGHT exhibited a boy, aged 12, who in June, 1920, had twitching of the mouth and left leg, and, a few hours later, drooping of eyelids and lassitude. When admitted he was profoundly lethargic, and showed katatonia and bilateral ptosis. The cerebro-spinal fluid showed two lymphocytes per c.mm.; weak positive globular reaction (Noguchi), negative Wassermann, and a good reduction in Fehling's solution. On June 23rd he developed a tremor of the left arm, and occasional clenching of the left hand associated with transient loss of consciousness. For about 18 months he slowly improved, but during the past 12 months there had been a gradual deterioration.

Discussion.

The PRESIDENT said some writers on this subject appeared to be very pessimistic as to the outlook in these cases. One Scandinavian writer said practically in all cases the illness left something behind. In a collection of cases made in Indiana, numbering 300, 25 per cent. ended fatally, 25 per cent. had only insignificant after-effects, and 50 per cent. had serious sequelæ. Certainly in earlier days there were many failures to diagnose the condition. It was almost impossible to diagnose sleeping sickness in a baby; plenty of sleep was accepted as a sign of good health, yet the later appearance of some such babies suggested they were victims of a mild form of the disease.

Prof. ARTHUR HALL (Sheffield) said the symptoms of the disease described as occurring in children were found in adults too, but differently balanced. He mentioned the case of a medical man who had periodic attacks of hyperpnœa, followed by long periods of apnœa. The after-effects of the disease were sometimes appalling. One case he saw was that of a boy who apparently had myasthenia gravis. Five years later he had apparently recovered, but was left with a spasm of the face and mouth, and every few seconds his jaw dropped. The moral effects in children were often of a very serious kind. He gave some instances.

Dr. PARKES WEBER thought that in examining these cases more care should be taken in excluding mental abnormality, so as to avoid surprises and difficulties when the patients sought work. He referred to a case which presented a remarkable example of bradykynesia (delayed movement); the movements were so slow as to resemble the slowed movements shown for purposes of analysis at the kinema. He had seen a similar lethargy in responding to questions.

Dr. F. C. SHRUBSHALL spoke of the help in tracing the histories of these children which could be afforded by the school service in London. This organisation possessed records of 60 children who were supposed to have had encephalitis lethargica. These children showed apathy, and failed to get on at school; some were moral delinquents. But he insisted that the application of educational methods early would obviate many of these children having to be sent to an asylum. Before declaring that a child was a subject of permanent mental defect, he should be under prolonged observation.

Dr. H. C. CAMERON agreed that the abnormality of conduct seen in these children did not differ in type from the abnormality noticed to ensue from faulty parental management; it amounted to a manifestation of the strong desire to make a sensation and attract attention to itself. The change of temperament brought about by the disease was a very serious matter.

Dr. A. S. MACNALTY said that in their efforts at the Ministry of Health to follow up the cases of the disease which were notified they had not found one with the Parkinsonian syndrome. A book had recently been published incorporating the experience of Prof. Pierre Marie and Dr. Gabrielle Levy, stating that out of 129 cases, 70 had the Parkinsonian syndrome. It would be interesting to know whether the comparatively phlegmatic population of Scandinavia produced more instances of that syndrome than did the more excitable Latin races. He was glad Dr. Shrubshall had some faith in education in mitigating the mental sequelæ; but the prognosis in the severe cases was not yet properly known; it certainly was very bad in the Parkinsonian cases. At present the prognoses given should be very guarded.

Dr. C. P. SYMONDS remarked on the small proportion of cases coming up with sequelæ in which the diagnosis was made at the time of the illness, mostly because it had been of only mild intensity, yet the after-results were sometimes very grave. The latent period might last as long as two years, and the virus might have been smouldering in the patient all the time. In a woman aged 38, who had a mild initial illness and severe Parkinsonian symptoms which proved fatal, sections through the corpus striatum showed some perivascular cupping, and a marked hyaline degeneration of the small arterioles, which had gone on in some instances to calcification. That supported Dr. Buzzard's view that the sequelæ were due to progressive degenerative and obliterative changes in the vessels, and consequent anæmia of the nervous tissues.

Dr. D. MACALPINE said he had seen over 30 cases. Of these, 10 had a latent period of at least six months (between the original attack and the first sequel).

The periods varied up to three years nine months, the latter being the case of a woman aged 39, who had an illness in 1918 characterised by insomnia, paresis of accommodation, and paralysis of one side of the face. In three months she said she was all right, and returned to her work as a saleswoman. She kept well until last August, then had blurring of sight, insomnia, and two months later had the Parkinson syndrome. Voitz and Ramsay Hunt considered that the lesion was in the globus pallidus, but another authority placed it in the substantia nigra. He, the speaker, was at present working on a case which died of the Parkinson condition 18 months after the attack, and it was already clear that the main lesion in that case was in the substantia nigra, though there were other changes in the corpus striatum.

SECTION OF OTOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 19th, Dr. LOGAN TURNER (Edinburgh) occupying the chair.

Labyrinthitis Complicating Middle-Ear Suppuration.

Dr. LOGAN TURNER and Mr. J. S. FRASER submitted a contribution on this subject. It consisted of a classified presentation of the result of 15 years of work in the special department at Edinburgh Royal Infirmary—1907–1921. In the early part of that period the examination of the static labyrinth was in a more or less experimental stage; and it was possible the earlier observations were not as accurate as the later ones. They were dealing only with middle-ear suppuration and labyrinthitis as a complication of tuberculous disease. During the 15 years they examined 8864 cases of middle-ear suppuration, 2172 being acute, 6692 chronic. The secondary labyrinthine cases numbered 117, or 1·3 per cent. In 7 cases the labyrinth disease was bilateral, and altogether they had under care 10,653 suppurating ears. Of the total, 1·1 per cent. had labyrinth infection secondary to middle-ear suppuration. Of the 117 cases 75 were males, 42 females. Most of the labyrinthitis cases occurred in the first four decades of life. The 117 cases were divided into (1) acute and subacute middle-ear suppuration, and (2) chronic cases. One acute case had circumscribed labyrinthitis, as verified post mortem by microscopical examination; there were 3 of diffuse acute serous labyrinthitis, 4 of chronic latent labyrinthitis complicating the acute condition. In the 100 chronic cases there were 26 of circumscribed labyrinthitis, 14 of the acute manifest disease, 46 of the latent form, and cured cases 14. The duration of the discharge in the chronic cases seemed to have no bearing, but the relationship of cholesteatoma was interesting. Of 100 cases of labyrinth infection, cholesteatoma was present in 57, absent in 36, and in 7 there were no data on the point. Of the circumscribed labyrinthitis cases, cholesteatoma was present in 65 per cent., and in 69 per cent. of the acute purulent ones. Polypus was present in 31 of the chronic cases, half of them had cholesteatoma. The authors warned against snaring polypi without a previous careful examination of the labyrinth. In only 12 of the 117 cases had facial paralysis been found, but in the tuberculous ear cases 45 per cent. had this complication. Pathological changes were found in the outer wall of the labyrinth in 53 per cent., fistula in the lateral canal in 46. Cholesteatoma was found in 35 of the 59 cases, and it was absent in 24. Of the 117 cases 72 came into hospital without any intracranial complication, 45 being admitted with such. Of the 72, 11 were complicated by acute middle-ear trouble and 61 of the chronic. The 45 admitted with intracranial complication were divided into two groups: (*a*) those in which such complication was traceable to the labyrinth (24 cases); and (*b*) cases associated with labyrinth affection, but not directly traceable to it (21 cases). Of the 61 cases with complicated chronic middle-ear suppuration, 19 were circumscribed labyrinthitis, and 18 of these had the radical mastoid operation performed, and all recovered. In a total of 31 labyrinth operations, there were no deaths. Of the 24 cases which were regarded as secondary to labyrinth complication 20 were cases of meningitis, 4 were cerebellar abscess. There were operations on 20 cases of meningitis. Two were moribund when seen and died shortly after admission; 15 had labyrinthectomy done, and 3 the mastoid operation. There were 20 recoveries. Of 1720 mastoid operations done in the period under review, there were only 6 cases of post-operative labyrinthitis—i.e., 0·3 per cent.—so that the operative risk was very low.

Mr. FRASER showed, by means of the epidiascope, fine micro-photographs of a large number of cases, giving a short clinical summary of each.—Mr. ALBERT A. GRAY (Glasgow) highly praised the beauty of Mr. Fraser's slides.

Mr. SYDNEY SCOTT had seen only one case in which the whole labyrinth had been replaced by bone tissue, and as the case came from a Poor-law infirmary there was an absence of history. He supposed such a condition was due to infection. He spoke of a type of case sometimes occurring in patients with cholesteatoma or granulations, but with no sign of internal ear disease or of labyrinthitis, and in whom, a month after the operation, a small granulation on the inner wall was seen. If this spot were touched, violent vertigo, forced movements, and nystagmus ensued. Probably that was because the layers of bone which formed outside the canal became so thin and soft that pressure was transmitted to the labyrinthine fluid. That sign did not cause him to conclude that the labyrinth must be opened. Usually the condition gradually subsided if left alone. The cases under discussion must be diagnosed early, and it was a condition with which the general practitioner should be better acquainted.

Mr. G. J. JENKINS confirmed Mr. Scott's description of cases occasionally met with a month after operation in which violent vertigo followed the touching of a small granulation on the inner wall.

The authors of the paper briefly replied.

Vertigo with Fixation of Ossicles.

Sir JAMES DUNDAS-GRANT showed a case of this condition which was cured by the operation of ossiculectomy. The patient, a male aged 24, had such severe attacks of giddiness that he fell. He had chronic suppuration in the left ear, which was dealt with satisfactorily by a modified mastoid operation; but the vertiginous attacks persisted and could be excited by even slight pressure on the *right* (the opposite) tragus. The right malleus was found tied down to the promontory by cicatrices. After removal of the ossicles the vertigo almost disappeared, and pressure on the tragus no longer induced it.

Parotid Fistula Following Mastoid Operations.

Mr. NORMAN PATTERSON showed a girl, aged 12, who had had right otorrhœa, on and off, since infancy. When seen she had a purulent discharge from the right ear, and her posterior meatal wall bulged. She had posterior perforation and tenderness over the mastoid. Mr. Patterson at once did a complete mastoidectomy and found cholesteatoma in the middle ear. The lateral sinus appeared healthy. Two days later he reopened the wound and removed blood-clot and sloughs. The internal jugular vein was ligatured. For a week the oscillating temperature rose to 104° F. Five months later a swelling was seen in the operation scar and this burst. It was found subsequently to be coming from the parotid. It was now intended to cauterise the fistula.

Unusual Condition after Radical Mastoid Operation.

Mr. SCOTT showed a case in which he performed the radical mastoid operation for cholesteatoma and chronic suppurative otitis, and found bony ankylosis of the body of the incus to the tegmen and aditus. In the general run of such cases there was no incus. It was necessary at the operation to cut away the tegmen, as there was a true synostosis with the incus, the latter being perfect in every detail.

HUNTERIAN SOCIETY.

GASTRIC AND DUODENAL ULCER.

THIS Society met on Monday evening, Jan. 29th, for the first time in its career, in the salon of the Mansion House, by courteous invitation of the Lord Mayor. The chair was occupied by Dr. FORTESCUE FOX, the President of the Society, and there was a large attendance.

Sir BERKELEY MOYNIHAN delivered the Hunterian Lecture on Gastric and Duodenal Ulcer. He said that the surgeon was apt to form conclusions rather from dramatic occurrences than from the daily placid routine. A review of past work served to correct impressions, often vague, sometimes very treacherous, or to confirm a faith which had grown almost imperceptibly. He had passed in review his surgical work on gastric and duodenal ulcer in the last ten years. The literature on the subject was formidable in bulk, but its value was not in proportion to its volume. Much of it had to be taken on trust, and he felt that no further progress could be made until, when talking of gastric ulcer, one could be sure that a gastric ulcer was actually present. Gastric ulcer was said to be of two kinds—acute and chronic. The chronic was an ulcer with a deep crater, steep and overhanging edges, in which there were present not only the evidences of destruction, but also evidences of defence, sometimes very stubborn defence. It was a cause, but not the only cause, of recurring symptoms; for in operating on patients in the intervals between attacks the open crater of an ulcer could still be seen. Possibly the thoroughly callous ulcer did not produce symptoms until the acute process was set up at its edge, or when, in connexion with acute ulcer, there was evidence of reinfection in the development of acute ulcer round the edge of the chronic ulcer, or when the scar of an old ulcer broke down and a new ulcer developed. An acute ulcer was generally a terminal event; it was evidence of acute infection, or of a toxæmia which expressed itself in the stomach by an impediment to the vascular supply, and the consequent impoverishment of a certain area of the gastric mucosa.

Chronic Ulcer of the Stomach and Duodenum.

He proposed to devote his address to a consideration of chronic ulcer. During the last ten years he had operated upon 718 cases of chronic ulcer of the stomach and duodenum. There were 531 cases of duodenal ulcer (433 males, 98 females). His last death in a case of duodenal ulcer occurred in 1912. There had been over 500 cases in since, without a death. Of the cases of gastric ulcer, there had been 164 (83 males, 81 females); gastric ulcer with duodenal ulcer, 23 cases. Thus, in 187 cases of gastric ulcer, duodenal ulcer had been present in 12·3 per cent. So far as was known, of the total number of patients operated upon, six had developed jejunal ulcer. Into the literature there was creeping the word "juxtapyloric" in connexion with ulcers of the stomach and duodenum. Such a word was unnecessary; it was only a peg upon which to hang a half-truth. Ulcer was either in the stomach, or in the duodenum, or in both, and no one having a real acquaintance with the living subject could have any difficulty in saying, in the overwhelming majority of cases, whether an ulcer was in the stomach or in the duodenum. In only three of the 718 cases was there doubt as to whether the ulcer was gastric or duodenal. Pyloric stenosis was almost always duodenal, and pyloric ulcer was, for academic purposes, unknown. Concerning gastric ulcer, the first thing desired to be known was as to the possibility of making a clinical diagnosis. Gastric ulcer was a rare disease, and he did not think the diagnosis of any abdominal conditions was so apt to be wrong as the diagnosis of gastric ulcer. If that was true, most of the treatment which had been applied to supposed gastric ulcer was being applied to a whole series of different diseases.

Symptoms.—As to the symptoms of gastric ulcer, the pain was characterised by its extreme punctuality. Where there were caprice and irregularity in the onset of the pain in reference to meals, the clinical history should be distrusted from the first. In gastric and duodenal ulcer the diagnosis depended on the rhythm. The rhythm of gastric ulcer was, that the patient was comfortable after a meal for a time, time varying according to the position of the ulcer. Then pain came on, and it passed off before the next meal was taken. Thus the rhythm was—food, comfort, pain, comfort. With duodenal ulcer the rhythm was not quadruple, but triple—food, comfort, pain, until food was taken again. In a search through the records it was found that three-fifths of the cases of gastric ulcer had pain appearing within one and a half hours of taking food, and that four-fifths of the cases of duodenal ulcer had pain appearing over two hours after the taking of food. Vomiting and other symptoms were quite infrequent in gastric ulcer, even when considerable obstruction was present. Often the patient had never vomited; he was able to gauge the capacity of the stomach, and took only such quantity as would pass readily into the duodenum. The cardinal happening, hæmatemesis, was the most treacherous thing of all. Even to-day students at hospital had the idea that hæmatemesis meant gastric ulcer, whereas this symptom usually meant cirrhosis of liver or splenic disease.

Diagnosis.—As to diagnosis, when the old physicians spoke of gastric ulcer they were usually thinking of duodenal ulcer. Even after the closest scrutiny of a clinical history had been made, no clinical diagnosis of gastric ulcer should be accepted. It was safer not to diagnose gastric ulcer unless one was supported by the ancillary methods. Of these the best was radiology. He found that the niche (which was demonstrated by photographs) indicated the presence of a crater, and the notch showed spasm; both these were unmistakable signs of gastric ulcer. In Sir Berkeley Moynihan's own series of gastric ulcer cases the orthotonic, the hypotonic, and the hypertonic stomach occurred in exactly equal numbers. In duodenal ulcer the stomach was orthotonic in 44 per cent., hypotonic in 24 per cent., hypertonic in 32 per cent.

The next important ancillary method was the fractional analysis of stomach contents. He had 420 charts taken on the old test-meal method, and he obtained from them so little information that he abandoned it. For a little more than a year the fractional meal method had been employed, and Dr. Bell, of Melbourne, had been doing this. The results were as follows:—

108 Cases of Ulcer.

	GASTRIC (total cases 38). Cases.	Per cent.		DUODENAL (total cases 70). Cases.	Per cent.	
Achlorhydria	5	13·1		4	5·5	
Hypochlorhydria	6	15·7		3	4·1	
Low normal	7	18·4		9	12·8	
Normal	13	34·2		4	5·5	
High normal	6	15·7	20	17	24·2	72·7
Hyperchlorhydria	2	5·2		34	48·5	
Curve with terminal ascent	1	0·2		21 (in 45)	46·6	
Stomach empties—						
Within 2 hrs.	7	18·6		20	28·5	
Between 2 and 3 hrs.	12	31·5	78·8	35	50·0	72·8
Over 3 hrs.	18	47·3		16	22·8	

23 Cases of Chronic Infection within the Abdomen, including Cases of Appendicitis, Tuberculous Disease of Intestine, or of the Mesenteric Glands, all Clinically resembling Gastric or Duodenal Ulcer.

	Total cases.		Per cent.	
Achlorhydria	3	.....	13·0	
Hypochlorhydria	8	.....	34·7	
Low normal	5	.....	21·7	
Normal	6	.....	26·0	
High normal	—	.....	—	4·3
Hyperchlorhydria	1	.....	4·3	
Curve with terminal ascent	3	.....	13·0	
Stomach empties—				
Within 2 hrs.	4	.....	17·0	
Between 2 and 3 hrs.	12	.....	52·0	83·0
Over 3 hrs.	7	.....	31·0	

Medical versus Surgical Treatment.

Assuming that the diagnosis which had been made was accurate, what was to be done? He never offered advice to a patient; he imagined himself in the patient's place, and asked what he would wish to be told. He felt that his position was that of a physician who was doomed to practise surgery. One of the things evident to the surgeon was the gross ineffectiveness of medical treatment for these conditions. If we considered the processes which must take place before gastric ulcer could heal, it was obvious that it was impossible for the hospitals to undertake the medical treatment of it, and private patients would not put up with the wearisome prolixity of treatment. As soon as medical treatment had been well started, the symptoms rapidly abated, but it was another matter to cause their disappearance. The treatment must go on for a long period. In treating medically, a search should be made for the foci of infection. The commonest of these were in the mouth or the accessory sinuses. The patient was then dieted and alkaline treatment begun. But why alkaline treatment? In 50 per cent. of cases of gastric ulcer there was diminished acidity, in only 50 per cent. hyperchlorhydria. He had not heard it argued that the giving of alkali provoked increased acidity. And why were alkalis given in both gastric and duodenal ulcer, in which the chemical conditions were dissimilar?

In the 718 cases referred to, Sir Berkeley Moynihan had removed the appendix 307 times, the gall-bladder 23 times. In over 50 of the patients the appendix, or the gall-bladder, or both, had been previously removed. In at least two or three cases in which the appendix was removed, the disease of that part appeared to have antedated the ulcer, or the conditions in and about the appendix were so gross that they could be regarded as probably causal lesions. Medical treatment gave no clue as to the infections in operation in the abdomen. If it was essential to get rid of oral sepsis before beginning treatment of gastric ulcer, it was equally necessary to get rid of other infections, the chief of which were inside the abdomen; and the relapses which so frequently occurred might be due to the fact that there had been treated only one aspect of a large disease. Prof. Matthew Stewart went through the post-mortem records of the last ten years in Leeds—the period covered by the present statistics—and found that during that time 75 patients had died in Leeds Infirmary from hæmorrhage or perforation in connexion with a gastric ulcer. There were 61 cases of perforation, 60 of them in chronic ulcers. There were 14 cases of hæmorrhage, 13 of them in chronic ulcers.

With regard to duodenal ulcer, they had had 129 deaths from hæmorrhage or perforation in that period. There were 117 cases of perforation. In 12 of of them there was acute ulcer, in 4 it was a chronic ulcer existing at the same time, which had perforated. There were 12 cases of hæmorrhage causing death from duodenal ulcer, and in every case the ulcer was a chronic one. It was impossible to be sure how many of the cases had undergone treatment, and the complete clinical history could not be obtained in all; but the majority had had medical treatment several times.

With regard to the question of carcinomatous degeneration of a chronic gastric ulcer, that was very controversial. It was still true that two out of three patients on whom he operated for cancer of the stomach gave a history which might be accepted as that of gastric ulcer. The pathologist found carcinoma already present in 18·5 per cent. of the cases, and the general average of carcinoma for the whole hospital was 11·5 per cent. In addition to ulcers which were apparently simple, there were ulcers which showed one edge upraised, thickened, and soft, and in such carcinoma was found. He had one specimen of a chronic ulcer showing scirrhus carcinoma at one edge, columnar carcinoma at the other. If the ulcer began as a carcinoma, which kind was there first? It might be said that duodenal ulcer never became malignant. Upon two patients he did gastrectomy for chronic gastric ulcer, and they died of either carcinoma of the stomach or a recurrence in the liver. He did not think there existed evidence that medical treatment had cured gastric ulcer. And the dangers of medical treatment were formidable, much greater than those attending operation; the physician should now realise that medical treatment was far less effective than surgical treatment to-day.

As to the best surgery, opinion was still divided. Gastro-enterostomy gave good results in a certain number of cases, but the results were not yet good enough. The mortality from this operation was larger than that of gastrectomy. There was no place to-day for gastro-enterostomy for the cure of gastric ulcer. It was true the operation was simple, it was so simple that it was practised by the inexpert surgeon. Balfour's operation of cauterising the ulcer and then doing gastro-enterostomy gave him (Balfour) good results in certain cases. Sir Berkeley Moynihan himself did only two operations. If the ulcer could be got away, he did gastrectomy. If the position of the ulcer was so inaccessible, its size so great, and its adhesions so profound that the patient could not stand removal of the stomach, he did gastro-enterostomy and jejunostomy, and fed the patient entirely through the jejunostomy tube. The slow healing of the ulcer was watched by means of X rays. The only operation which would survive was that which would relieve the patient of his immediate troubles, and afford the greatest warrant against any late results due to either physiological effects, or to the mechanical effects of the operation. He had had only four unfavourable results from gastrectomy.

Finally, he had an inspiring word for operators. The surgeon must have courageous faith, using meticulous care, for, in the last resort, the operation was a test of the spirit, and there were few things a man could not conquer if his heart was set on victory.

Sir Berkeley Moynihan showed a number of slides of micro-photographs showing the depths to which ulcers had penetrated, and skiagrams demonstrating the nitch and notch he spoke of as diagnostic X ray evidences.

Discussion.

Dr. BELL said the interpretation of the curves of fractional gastric analysis had not yet been fully worked out; there was need of more knowledge on normal curves. The most notorious type of curve was that due to duodenal ulcer; it was a rapidly-rising curve with continued secretion. Statistics based upon medical diagnosis were found to be very fallacious. The dependable curve was that of pernicious anæmia, which was found to be invariably accompanied by hyperchlorhydria. The classification of the six types mentioned by Sir Berkeley Moynihan was only arbitrary. It was difficult to get negative occult blood reactions during the treatment of gastric ulcer. After symptoms had disappeared and X rays showed no further nitch, there were still traces of occult blood in the fæces.

Mr. HERBERT CARSON thought the large question raised by Sir Berkeley Moynihan was whether the cases under discussion should be regarded as medical or surgical. The idea that these cases should never be turned over to the surgeon until they had been given a long course of medical treatment led people astray. Acute ulcer was a very different thing from chronic ulcer, and surgical treatment might well be confined to the latter. The surgical procedure tended to be more drastic in getting rid of the ulcer, because of the unsatisfactory results obtained from a less drastic procedure. Another reason was the bugbear of malignant degeneration. As to this the surgeon was more confident than was the pathologist. The chief tendency was to call a case simple when it was malignant, rather than the other way about. Because of these mistakes, it seemed to be safer to do some form of gastrectomy. He had given up the Balfour operation. The "sleeve" operation had given good results in his hands.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

AT a meeting of this Society held on Jan. 19th at 1, Upper Montague-street, London, W.C., Prof. T. EUSTACE HILL, the President, being in the chair, a paper was read by Prof. E. MELLANBY on

DIET, AN IMPORTANT FACTOR IN PREVENTIVE MEDICINE.

He said that much ill-health and mortality were due to bad methods of feeding. The study of diet might throw light on the epidemiology of many diseases not now understood. He was of opinion that much of the decline in infantile and other mortality was due to improvement in diet, and not merely to better environmental conditions such as housing. Most of the foods forming the staple diet of the working classes were deficient in fat-soluble vitamin; their tastes were not always a good guide as to what food was the best. For instance, the starchy foods and sugars which children desired were not the food they most needed. In the diet of adults cereals and butchers' meat, which usually took a great place, were supplemented by potatoes, pulses, lard, vegetable margarine, jam, and tea, coffee, and cocoa. These constituted the staple diet. Milk, cheese, eggs, and green vegetables were neglected. The diet was deficient in calcium, which, with the lack of the fat-soluble vitamin, accounted for a great deal of ill-health.

Pre-Natal Influence.

The influence of diet in pregnant women had not been much worked at, and Prof. Mellanby described some recent experiments that he had carried out with a pointer bitch. When she was deprived of the fat-soluble vitamin in an otherwise perfect diet during the last four weeks of pregnancy, all her puppies died within 11 weeks of birth. When she had this diet from the beginning of a subsequent pregnancy she aborted within eight weeks. And in a third pregnancy, when cod-liver oil was added to her diet she bore a healthy litter of seven, all of which throve well. The female had a great power of sacrificing her own tissues for the benefit of the developing fœtus, but there was a limit to this power, and therefore the diet in pregnancy was most important. It might be an important factor in the high pre-natal mortality which was so little understood.

Deficiency Diseases.

The speaker, discussing the relation of rickets to diet, instanced the islanders of Lewis, who lived under extremely insanitary conditions and yet were free from the disease and had perfect teeth. Their diet was rich in oily fish, milk, and eggs. Lantern-slides were shown demonstrating the action of the fat-soluble vitamin in rickets. Mrs. Mellanby's work in connexion with the teeth of puppies was also referred to, the dentine as well as the enamel being affected by deficiency of the vitamin. Ordinary inspection of children's teeth did not reveal this deficiency, except when they actually developed caries, but microscopical examination of the teeth from about 300 children showed that 84·5 per cent. were hypoplastic. He suggested that diet was the solution of the problem of defective teeth. He then quoted McCollum's work on rats, which showed that in respect of growth and fertility, butter could not exert its beneficial influence in the absence of calcium salts. For that reason milk was much better in that respect than butter. The outbreak of keratomalacia (xerophthalmia) in Denmark during the butter scarcity caused by the war was referred to, and its extirpation when an adequate ration of this fat was arranged for by the Danish Government. This was a unique case of the prevention of disease by official action in regard to diet. Stress was also laid upon successful treatment of infantile marasmus by a diet containing the requisite vitamins. The speaker said that rickets and marasmus were both completely preventable by proper diet. At the present time in London it was difficult to find florid cases of rickets for demonstration, and this he attributed to the work of infant welfare centres in regard to diet. It was the diet reform accompanying the child welfare movement that he regarded as primarily responsible for the great decline in infantile mortality. Prof. Mellanby contrasted the action of cereals and of the fat-soluble vitamins, with especial reference to the antagonism of bread and fat in the diet of puppies. An excess of bread tended to a fat, lethargic condition, while the influence of vitamin-containing fat *plus* calcium made for activity and rapid metabolism. The more bread that was taken the greater the amount of the fat-soluble vitamin required to maintain health.

In conclusion, Prof. Mellanby made the following practical suggestions: The consumption of cod-liver oil should be greatly increased. Teaspoonful doses were sufficient. It was the cheapest source of the vitamin on the market. More milk ought to be consumed. The eating of green vegetables, especially raw salads, should be encouraged. He would like to see calcium carbonate added to butter, say about 2 per cent. The difference this made was most striking. Adult diet should be regulated so as to contain more fat-soluble vitamin and calcium.

After concluding his paper, the speaker was asked to discuss the recent work on the action of sunlight in preventing and curing rickets. He stated that the Lister Institute experiments had shown that while the exhibition of sunlight on the uncovered body had a similar action to the administration of the fat-soluble vitamin, provided that the vitamin was merely deficient in amount in the body, and not entirely absent, yet if there were none of the vitamin at all the sunlight failed to produce this effect.

Discussion.

The PRESIDENT, in thanking Prof. Mellanby for his paper, said that it was now time for medical officers of health to act upon the new discoveries in dietetics. The description of the nutritional condition of adults in the industrial classes was only too true. Great improvement had taken place in the health of young children in Durham county coincidently with the increased consumption of dried milk; but there was a great deal of rickets amongst the school-children and adults. In view of the stress laid upon the calcium constituent of the diet, he asked whether there was any evidence of rickets being less prevalent in districts with a hard water-supply.

Dr. J. WHEATLEY (M.O.H., Shropshire) said that this was a matter in which it was important to teach the people to act for themselves. No line of action in improving the public health was more promising, and the Government should promote propaganda on the subject. In this matter the propaganda was more difficult than the research. The calcium deficiency in our diet he attributed to the fractioning of many articles of food. It was abundant in milk, but this was not intended as a food for adults, and we needed other foods rich in calcium. He raised the question whether calcium in mineral form could take the place of calcium in organic combination.

Dr. W. J. HOWARTH (M.O.H., London) raised the question to what extent tuberculosis was to be regarded as a deficiency disease. He instanced its parallelism with rickets in three respects—viz.: (1) The curative effect of sunlight in surgical tuberculosis; (2) the effect of cod-liver oil, which had for decades been regarded as a specific in the disease; and (3) the correlation between the mortality from tuberculosis in this country and the consumption of certain foodstuffs during the past century. He also questioned whether the mortality from influenza in 1918–19 was connected with the lack of fats in the national diet at that time. He thought that consideration should be given to the question whether the sale of margarine containing no animal fat should be prohibited or its constitution declared.

Mr. R. D. PEDLEY stated his opinion that Mrs. Mellanby's work would simplify the great problem which the care of children's teeth presented. It was now enacted that dental as well as medical treatment

was to be provided for children in public elementary schools, and dietetic prevention would make a great saving.

Dr. T. S. MCINTOSH (M.O.H., Hendon) said that more information was needed on the effect of boiling, pasteurising, and drying on the vitamin content of milk.

Dr. T. EVANS (M.O.H., Swansea) mentioned that in certain rural parts of Wales, where there has been much deterioration in the teeth, there has also occurred to a great extent an abandonment of the agricultural practice of liming the soil.

Dr. W. W. JAMESON (M.O.H., Finchley) remarked on the number of breast-fed children who afterwards did badly; he almost thought that the artificially fed had done best. He suggested that this was due to lack of vitamins in the tissues of the mothers.

In the course of his reply Prof. MELLANBY, dealing with the influence of lime salts in water, instanced the extremely bad teeth to be found in Sheffield, where the water was very soft. He did not think it was a vital factor. Oil rich in the vitamin could be obtained from the liver of other fish than the cod, and the oil from the muscular tissue of herrings was very good. He believed that improvement in diet was the most promising way to deal with tuberculosis in this country. Refined cod-liver oil was as good as the crude, but the refining was a wasteful process, because the rejected stearin was just as rich in vitamin as the refined oil. He himself used the unrefined oil.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

THIS section met in the Royal College of Physicians of Ireland on Jan. 12th, Dr. T. HENNESSY, the President, being in the chair.

Dr. HORACE LAW read a paper on

Hospital Finance.

He pointed out that it was not the custom for hospitals to have balance-sheets like a company, showing their capital expenditure as well as their yearly receipts and expenses; the costs of sites and buildings were written off and forgotten. In spite of the deficit incurred during the war, the hospitals of Dublin were not in serious debt. For many years past, however, the annual income did not balance the expenditure and was supplemented by bequests which were used as income. Dr. Law sketched the development of the Board of Representatives of the Associated Dublin Hospitals. This board had been engaged chiefly in studying the means of increasing income. The ideal method was for the people to subscribe small weekly sums, when well, so that the hospitals might care for them when sick. An agreement with one of the branches of the Irish Transport and General Workers Union had been made embodying this principle. A system of payments by urban and rural sanitary authorities for necessitous patients coming from their areas was in force in connexion with about 60 of these bodies. Arrangements had also been made with the National Health Insurance Commissioners whereby the approved societies might include hospital benefit as one of their extra benefits. Under the schemes of the board of representatives the patient had free choice of hospital, the payments being made by the board to each hospital in proportion to the work done in treating patients. Dr. Law, while acknowledging the economy and increased efficiency which would result from amalgamation of hospitals, thought this end at present impossible of achievement. Further, he pointed out that the smaller hospitals permitted of the patient being individualised, with the result that the patient subsequently took an interest in "his hospital." The great increase in all hospital expenses was dealt with and it was pointed out that the nursing staffs were now being treated with greater justice.

Sir JOSEPH GLYNN said that in Ireland it should be an easy matter to make a new start in connexion with the hospitals. State control would kill the hospitals, and should only be accepted as the last possible expedient. There were now two ways in which this question could be approached: (1) The rate in aid, through the county councils, had the disadvantage that if any one of the 26 counties stood out there would be difficulties, and in any case a pool board would have to be set up to distribute the money; (2) the grant in aid was the scheme used in connexion with child welfare schemes at present working in Ireland and was favoured by the speaker. Incidentally, he was of opinion that some of the hospitals in Dublin could make claims on this scheme; certainly the Children's Hospital could. The hospitals treated the sick people of the State, and trained doctors and nurses for the coming generation. The service which the hospitals were doing to the State was quite beyond any aid which they got from the State. He was of opinion that for every £1 raised £1 should be given by the State, up to 50 per cent. of the annual expenditure of the hospitals. The annual accounts of the hospitals should be given to a public auditor to be certified. Such a scheme would give the officials of the hospitals a chance to devote their time to hospital work, instead of spending time in raising money for them. The Government would probably welcome any really solid proposal.

Sir JOHN MOORE said that one point not mentioned was the proposal of granting a fund to provide equipment for the hospitals; this expensive item was hardly a proper charge on the voluntary subscription lists of the hospitals. It should be met by the State.

Sir JAMES CRAIG said that he had opposed State aid, where State aid meant State control, as he felt that the hospitals would never be managed in the same way under State control as they were now managed. There was no doubt that the hospitals were in a serious condition. As to lotteries, no matter how careful control was exercised, they could not tell how much fraud went on in connexion with these. He said he would not allow these lotteries to go on unless a Bill was brought in by some private member legalising lotteries in connexion with charitable institutions. Regarding child welfare, there was no reason why each hospital should not have a member of the staff in the out-patient department doing work in connexion with this scheme, which was capable of very great extension.

Dr. R. J. ROWLETTE said that some years ago the hospitals came to the conclusion that they were admitting, and treating free of charge, patients who were well able to pay for their maintenance, and they therefore decided that all patients should contribute as far as they were able to the funds. In some cases this idea had been overdone. Treatment should be given to patients free, if they were unable to pay for it. If the hospitals relied too much on payment from patients, they would injure both the patients and the hospitals. Some patients who were unable to pay for their maintenance in hospital were now shy of asking to be admitted without paying, and if they paid, their families at home starved. The hospital governors found it easier to get money from the patients than to ask for it from the public. Now that the patients paid, the voluntary subscriptions had fallen off. He did not see how a hospital which would be dependent mainly on Government grants could resist State control. He would prefer voluntary control, though he would have no objection to Government supervision. There was one question which had not arisen here yet, but which would later on, in connexion with payment from the patients, namely that of payment of hospital staffs. If the hospitals were not charitable institutions, there would be no claim on the doctors to give their skill and time free to these institutions. He hoped that the question of amalgamation of the smaller hospitals in Dublin would not be lost sight of.

The PRESIDENT said that the Dublin hospitals were worthy of support from the public and also of a grant from the State. Very few of the hospitals in

Ireland were fully equipped; some of the country hospitals had been closed, with the direst consequences. In Cliffden, co. Galway, some people were 70 miles from the county hospital, and had to be sent to it by sea. In most of the workhouse hospitals the sanitary accommodation was not at all up to date, and he would not like to see the people in Ireland wholly dependent on the city hospitals. Patients admitted to hospitals should come under three classes: (1) free or indigent patients; (2) tariff patients; (3) paying patients.

Dr. LAW, in reply, said that the question of payment for accident cases had not been discussed. Hospitals had been established specially for this type of patient, and they should be freely admitted. He agreed with Dr. Rowlette that the hospitals were abusing payment of patients. It should not be forgotten that the hospitals were first of all charitable institutions. There were free beds in all the hospitals, but in some they were very difficult to find. At the hospital to which he was attached they had appointed a paid almoner to deal mainly with the out-patients. This work had been most successful. He was of opinion that lotteries were quite wrong, as he believed that if money was to be got for the hospitals, it must be got by clean methods.

MANCHESTER PATHOLOGICAL SOCIETY.

A MEETING of this Society was held on Jan. 17th, with Prof. SHAW DUNN, the President, in the chair.

Mr. E. F. GUY read a paper on the

Fractional Test-Meal and the Information obtained from it in Ulceration of the Stomach and Duodenum.

The paper was based on an analysis of 60 cases from a surgical clinic in 36 of which the presence of an ulcer had been confirmed at operation. He had found a hyperacid resting juice in duodenal ulcer, with a continued high acidity persisting after emptying of the stomach. On the motor side there was "hurry," emptying in less than the normal two and a quarter hours. In gastric ulcer, particularly ulcer of the body of the stomach, the acidity was generally low and emptying was delayed. Blood might be present in both duodenal and gastric ulcer. With pyloric ulceration stasis was a prominent feature, with an acidity which rose to a high level during the digestion of the meal. The resting juice in this category was low, and the after secretion not commonly very acid. Mr. Guy showed charts of cases before and after operation, demonstrating that the amount of reduction of acidity was not constant but depended on the character of the gastric secretion before operation. Even after pylorectomy the acidity might remain high, and emptying was often very hurried.

Mr. GEOFFREY JEFFERSON, on whose cases these tests had been carried out, said that he thought these charts showed in concrete form facts of which medicine had before been clinically aware. For instance, the commonly excellent results following gastro-enterostomy were explained by the improvement in the rate of emptying of the stomach, and the acid secretion accompanying ulcer in this situation was not of a character likely to lead frequently to after trouble. In duodenal ulcer the relatively high acidity which remained after gastro-enterostomy no doubt accounted for the troubles which sometimes followed, including secondary ulceration. The method, he said, yielded valuable information in cases where operation had not given a perfect result.

Exhibition of Cases and Specimens.

Dr. T. M. BRIDE showed four specimens of sarcoma of the choroid, two pigmented and two non-pigmented. He estimated their frequency as 1 in 3000 cases examined and asked for information from the members on the late results of these cases.

Dr. CORSAR STURROCK mentioned two cases where death occurred from secondary manifestations in the liver within two years after enucleation of the eyeball.

The PRESIDENT and Dr. BOSDIN LEECH described the case of a boy, aged 3, who had dullness of the left chest and dyspnœa of a stridulous kind. This continued for two and a half months, the temperature remaining normal, until the child died rather suddenly. Examination by Prof. Shaw Dunn revealed a minute piece of fish bone embedded in the right side of the larynx. There was perichondritis and absorption of cartilage cells. The afebrile course of the consequent bronchopneumonia was, they thought, remarkable.

Dr. ARNOLD JONES showed a case of cavernous hæmangioma of the vocal cord in a man 45 years of age. He removed the growth successfully by the indirect method. Dr. Jones remarked on the rarity of the condition, there being apparently not more than 73 recorded cases.

Mr. E. E. HUGHES showed some calculi found by chance in the bladder of a man of 65 at necropsy. Three of the calculi were of a curiously accurate mathematical shape, one consisting of a small round ball from which six long cone-shaped spikes projected.

Dr. HILLYARD HOLMES presented the kidneys from a case presenting signs which led to the diagnosis of "essential hæmaturia." Urinary bleeding was severe and the patient died in a uræmic state. At autopsy small granular kidneys were found, and Dr. Holmes remarked on this fact as being a likely explanation for many cases of so-called "essential hæmaturia." Dr. Holmes showed also a ruptured aneurysm of the middle cerebral artery in a non-syphilitic man of 38.—Prof. SHAW DUNN said that aneurysms were a commoner cause of cerebral hæmorrhage in young people than was generally recognised. They might occur in childhood, and he commented on the peculiar frangibility of the cerebral vessels as a class.

MIDLAND MEDICAL SOCIETY.

A MEETING was held in the Medical Institute, Birmingham, on Jan. 17th, Dr. C. E. PURSLOW, the President, being in the chair.

Exhibition of Cases and Specimens.

Mr. J. B. LEATHER showed a child of 12 who had lost a considerable part of both hands and one foot, as the result of syphilitic disease of the bone. The case was discussed by Mr. H. H. SAMPSON, who said that he had seen similar loss of tissue as the result of obliterative endarteritis.—Mr. B. T. ROSE thought that Raynaud's disease could not be excluded.

Dr. A. P. THOMSON gave the history of an obscure case of prolonged pyrexia, and showed a temperature chart (prepared in the manner suggested by Prof. Arthur Hall, of Sheffield) to illustrate the characteristics of the continued fever. The history was that of a previously healthy woman, aged 39, who, eight months ago, was seized with an illness which since had run a curiously intermittent course, corresponding with the intermissions of her temperature. While under observation in the hospital she had had bilateral effusion of blood in both pleural cavities, and the spleen and liver for a time had been enlarged and hard. Physical examination and all ordinary clinical methods had yielded nothing on which to base a diagnosis. The most suggestive feature was the relapsing nature of the fever. Dr. Thomson thought the case in all probability was one of Hodgkin's disease showing the Pel-Ebstein syndrome.—Dr. J. W. RUSSELL, for comparison, showed a chart of a case of Pel-Ebstein syndrome, which had died under his care.—Dr. ALFRED PINEY mentioned that Von Siegler described two cases of undoubted Hodgkin's disease, in which effusions of blood had occurred in the pleura and peritoneum, and he stated that in these cases it had been found that the effused blood showed a marked eosinophilia.—Dr. G. H. MELSON considered that in spite of negative blood cultures septicæmia could not yet be excluded.

Mr. SEYMOUR BARLING read a paper on Chronic Duodenal Ileus, and gave clinical histories of seven cases. In two of these the condition was caused by

narrowing the duodenal lumen by the invasion of the wall of the bowel by growth or inflammation, whilst the symptoms of the other five were due to obstruction at the crossing of the mesenteric root and the superior mesenteric vessels. After pointing out the similarity in the symptoms of these two groups of cases, the relationship of the condition to the ætiology of acute gastro-duodenal ileus was considered. Diagnosis of the chronic condition could be made in a certain number of cases by a consideration of the clinical and radioscopic picture, but its mimicry of the symptoms produced by chronic appendicitis and gall-stones and chronic duodenal and gastric ulcer was often very close. The disease must be regarded as a clinical entity to be considered whenever a case of chronic indigestion was being investigated, and when laparotomy was performed in such cases the routine examination must include the third part of the duodenum and the site of crossing of the vessels.

The paper was discussed by Mr. L. A. DINGLEY, who showed a specimen of the condition which he had recently met with, and described two similar cases.

Dr. T. L. HARDY described the results of gastric analysis by the fractional test-meal method in some of Mr. Barling's cases. He stated that occasionally the diagnosis might be inferred from the chemical examination alone.

Mr. W. BILLINGTON considered that the slighter degrees of the condition were not rare, and stated that in his opinion the mobility of the right kidney was occasionally responsible for it.

BATH CLINICAL SOCIETY.

Exhibition of Cases and Specimens.

A MEETING was held on Jan. 5th at the Royal United Hospital, Mr. W. G. MUMFORD, the President, being in the chair.

Mr. F. FRASER showed: 1. A case of old osteomyelitis in which the growth of the tibia had ceased, with the result that the fibula had outgrown and distorted the leg considerably. The orthopædic proceedings necessary to correct the deformity were described. 2. A child sent in as an acute abdomen; the case proved to be a double pneumonia and an acute pneumococcal peritonitis with complete recovery. 3. A case and specimen of abdomino-perineal removal of the rectum and sigmoid. The patient a month after the operation was remarkably well.

Dr. R. G. GORDON showed a case of malignant disease of the right testicle growing up the canal, and a photograph and X ray of nodes in an early case of rheumatoid arthritis.

Mr. A. L. FULLER showed a specimen of a left broad ligament dermoid with torsion of the omentum and separation of the tumour from the uterus by torsion.

Dr. W. P. KENNEDY showed an X ray plate of the cervical spine showing fracture of the body of the third cervical vertebra.

Dr. V. COATES showed a plate of the sella turcica in a case of acromegaly.

Dr. RAY EDRIDGE read a paper entitled

Romance and the Pharmacopœia.

The subject of the paper was the career of Dr. Thomas Dover (1660–1742), famous for his powder and notorious for his piracy on the Spanish Main. Dover's voyage round the world in his expedition captained by Woodes-Rogers is chronicled in the journal of the latter worthy and makes extraordinary reading when we consider the heads of the expedition were respectable members of society in their own country. Not the least interesting episode was the rescue of Alexander Selkirk from Juan Fernandez. Dover's quarrels with his fellow practitioners were endless. His science may have been questionable, particularly his predilection for quicksilver, "the greatest gift of God in the whole materia medica," but his popularity was considerable, and although his detractors' very names are dusty and forgotten, Dover himself still lives in the Pharmacopœia by reason of his powder.

Reviews and Notices of Books.

ŒUVRES DE PASTEUR.

Collected by PASTEUR VALLERY-RADOT. Vol. I.: Dissymétrie moléculaire. Pp. 480. Fr.50. Vol. II.: Fermentations et générations dites spontanées. Pp. 664. Fr.65. Paris: Masson et Cie. 1922.

THIS stately edition of the complete works of Pasteur forms a notable item in the celebration of the hundredth anniversary of his birth. Under the pious care of his grandson it will extend to seven volumes, of which the first two are now published. Volume I. contains some 45 memoirs of varying length and importance—some are brief notes—dealing with his early studies in crystallography and dating mostly from 1847–1857; there are as well a number of reports of committees of the Academy of Science on Pasteur's papers and similar varia, including the statement made by Lord Wrottesley when he was awarded the Rumford medal of the Royal Society of London in 1856. As is well known, Pasteur occupied the rest of his life in biological studies, always with a hankering after his early love. He went as far as to say, "I am convinced that life as we see it is a function of the dissymmetry of the universe or of the results which that entails," and as late as 1878 engaged in a project of putting together his classical work in chemical crystallography in the light of subsequent advances in knowledge. He wrote a preface and an introduction, which are here reproduced, but the book was drowned in his work on pathogenic bacteria, and never appeared. Volume II. reproduces about 30 papers written between 1857 and 1863 on alcoholic, lactic, and butyric fermentations, a series of 11 on spontaneous generation of 1860–1866, and a mass of "remarks," "replies," &c., on publications by Bastian and others on the same subject belonging to the period 1871–1879. Subsequent volumes will collect his studies on vinegar and wine, on silkworm disease, on beer, on infectious diseases, and on miscellaneous subjects.

The tale is told that when America went dry some of those who knew where to look went to the works of Pasteur for inspiration and practical help in their troubles—and not without reward. Let us hope that they found some of the pageantry of Pasteur's pilgrimage in their search for amateur alcohol. For a world of leisure with some room for quiet contemplation contains few more elevating experiences than to be absorbed for a while in the history of a great mind. And Pasteur's mind was materially productive as well; the mass of his writings is enormous, and it will indeed want leisure to apprehend their significance. Parts of the present volumes can easily be passed over; the controversies are not really intelligible in the absence of his opponents' writings, and Pasteur had not appreciated that to establish the truth of his own view he had to show only that he was right, not that the other man was wrong; he seems, indeed, to have shouldered the burden of rebuking sin without any great reluctance.

The editor has added a number of notes, almost exclusively of a bibliographical character. It would have added immensely to the value and interest of the collection if he could have got together a commentary on the substance of the papers, indicating where they stand in the history of the progress of knowledge. No one nowadays can have without guidance an expert appreciation of the detail of all the diverse topics with which Pasteur at one time or another concerned himself. A commentary would want a band of commentators, but the gain to the ordinary reader would be enormous. There happens to be in the last number of *Science Progress* (January, 1923, p. 386) an illuminating article by Mr. W. T. Astbury on the analysis of the molecular structure of crystals by X rays, in which the author points out that the methods of crystal analysis developed so wonderfully

by Sir William Bragg and others in the last ten years fully confirms Pasteur's prophecies of 60 years ago and shows how far his fundamental work may be carried. The past, indeed, is of no interest in itself; without reference to the present we cannot even understand it.

ESSENTIALS OF CHEMICAL PHYSIOLOGY.

For the Use of Students. Eleventh edition. By W. D. HALLIBURTON, M.D., LL.D., F.R.C.S., Professor of Physiology in King's College, London. London: Longmans, Green and Co. 1922. Pp. 343. 8*s.* 6*d.*

WE cannot presume to introduce to our readers a book in its eleventh edition, on which so many of them have been brought up. This edition is thoroughly up to date and sound in every particular. Chemical physiology, called nowadays biochemistry or physiological chemistry, is really what the medical student wants; it is a branch of physiology in fact, and not of chemistry; it is physiology from the chemical standpoint, not the reverse. Accordingly, the book contains such theoretical matter as is desirable in approaching physiology from the chemical aspect. The practical exercises, printed in larger type, are well chosen to illustrate the subject in its close relation to the requirements of medical teaching, the applications of physical chemistry being neither forgotten nor given undue prominence. We have no suggestions or criticisms to offer; the book is good.

PRAKTISCHES LEHRBUCH DER TUBERKULOSE.

Second edition. By Prof. G. DEYCKE, Hauptarzt der Inneren Abteilung und Direktor des Allgemeinen Krankhauses in Lübeck. Berlin: Julius Springer. 1922. Pp. 301. 12*s.*

THE table of contents of this book gives the false impression that it follows the stereotyped lines of the conventional and orthodox text-book. First there is the inevitable historical review, followed by an account of the characteristics of acid-fast bacteria. There follows an account of tuberculosis as a national scourge, and statistics are given to show the extent of its ravages. Much other stock and standard information is given, and given lucidly and instructively. But the outstanding feature of this book, the thread running through the whole of it, is its advocacy of the system of partial antigens or partigens associated with the names of Profs. G. Deycke and H. Much. It is illustrative of the author's faith in this system that he recommends it even in renal tuberculosis—that hitherto uninvaded sphere of the surgeon. It is interesting to note that Prof. Deycke considers the spread of infection from one kidney to the other is by the blood-stream, although other authorities trace infection of the second kidney to ascent of tubercle bacilli from the bladder up the second ureter.

As regards treatment, the author claims that nephrectomy is being displaced by specific treatment, and in this field partigen treatment is definitely superior to plain tuberculin treatment. Indeed, it seems to be renal tuberculosis more than any other localisation of tuberculosis which has proved the value of partigen treatment. The author recommends nephrectomy only when there are signs of extensive suppuration, and even in such cases he considers specific treatment a necessary adjuvant. His statistics are not as rosy as his general conclusions. On p. 170 he tabulates the results of partigen treatment in 1761 cases of tuberculosis, chiefly pulmonary. There are 40 cases of urino-genital tuberculosis, only 6 of which rank among the "cures." This table does not show how many of these cases represent infection of the kidneys cured by partigen treatment, but on p. 258 the author refers to one severe case of renal and vesical tuberculosis in which a single course of partigen treatment effected a cure which was still maintained five years later.

Those interested in partigen treatment should consult this book, which gives a first-hand account of its rationale and technique. The author's enthusiasm for it is great, and it is not marred by that praise of self and abuse of others which too often produces prejudice against tuberculin therapy.

THE TREATMENT OF ACUTE INFECTIOUS DISEASES.

Second edition, revised. By FRANK SHERMAN MEARA, M.D., Ph.D., Professor of Clinical Medicine in the Cornell University Medical College. New York: The Macmillan Company. Pp. 806. 31*s.* 6*d.*

Prof. Meara's book has many original features. It is an exhaustive treatise on the therapeutics of the infectious diseases and at the same time is admirably designed for rapid reference. At the cost of a considerable amount of repetition in the description of methods of treatment applicable to more than one disease, the chapter on each fever is presented as a complete whole, with a minimum of cross references, and, moreover, a full summary of contents is appended. This lavishness, though convenient, is a little overdone. Thus in the section on "Grip," the same prescription appears twice written out in full, once in the chapter itself, and once in the summary.

Beginning with a short summary of the main principles of the treatment of fever, Prof. Meara next deals at some length with the question of dietetics. His recommendations are suggestive, and cannot fail to be of use to the practitioner. The infective conditions included in the book number no less than 44, and include diseases which are not, as a rule, classed among the infectious diseases in this country. For instance, tonsillitis, tracheitis, and pleurisy, as well as pneumonia and rheumatic fever, are discussed in detail. The serum treatment of pneumonia is described at length, and full directions are given for dealing with the various complications of the disease. For the diet in typhoid fever Prof. Meara strongly advocates the free use of carbohydrates, and considers milk-sugar the most suitable form in which to give them to make up any deficiency. He also believes firmly in hydrotherapeutic measures and the use of the cold bath. He obviously has little enthusiasm for vaccines in this fever, but speaks not unfavourably of their intravenous administration in doses of from 25 to 50 millions. Prof. Meara appears to lay as much stress upon the dangers of circulatory failure in scarlet fever as in diphtheria. The vasomotor stimulants on which he most relies are camphor and caffeine, the latter particularly in emergencies, and he appears to depend on digitalis more than many in this country would be inclined to do. He has a good word for adrenalin, but regards alcohol as useless in circulatory failure; this attitude seems to be very general among American physicians. He is an enthusiastic supporter of open-air treatment; in his view cold air playing on the face has a reflex stimulant effect, and this treatment can be trusted to raise the blood pressure more effectively than any drug will do. The dosage of antitoxin is fully discussed, and the author's recommendations are much the same as those of the Board of Health of New York. For mild cases 3000 to 5000, for more severe 5000 to 6000, and for malignant 15,000 to 20,000 units are advised, these doses to be repeated if necessary. A short section on intubation, contributed by Dr. Miner C. Hill, while sufficient for students, is hardly full enough to satisfy those who have had real difficulties with retained tubes. The chapter on cerebro-spinal fever is excellent; we note that W. Herrick's method of supplementing intrathecal by intravenous injections is advised.

Prof. Meara's book is of great practical value, the different methods of treatment being most judicially discussed, while the author has the courage to give his readers a definite lead. The numerous prescriptions will be found useful, no drug being mentioned without the appropriate dose being indicated. The reader will find much more in these pages than therapeutics. The full consideration of that subject entails

the discussion of many pharmacological and pathological questions, and, as all the complications of the individual diseases are also fully dealt with, there is a mass of varied information which makes the volume very easy, and always interesting, reading.

FOOD, HEALTH, AND GROWTH.

A Discussion of the Nutrition of Children. By L. EMMETT HOLT, M.D., LL.D., President Child Health Organisation; formerly Professor of Diseases of Children in the College of Physicians and Surgeons, Columbia University, New York. London and New York: Macmillan Company. 1922. Pp. 273. 7*s.* 6*d.*

ALTHOUGH there are already so many good books, and not a few bad ones, dealing with this subject, the present little volume will, we feel confident, make and maintain for itself a place in the literature. Written for the general reader, it gives none the less the results of the latest researches in an excellently clear manner, and will be found really interesting reading. It is a thoroughly sound and wise book by one who knows all that matters about his subject. Many writers on this and kindred subjects would do well to imitate this author's method of presenting dietetic facts without innumerable tables which few have the industry to consult properly. The author gives tables of caloric values of common foods in an appendix.

HEREDITY AND INSANITY.

Vererbung und Seelenleben. By Dr. H. HOFFMANN, Privatdozent, Tübingen University Neurological Clinic. Berlin: Julius Springer. 1922. Pp. 258.

THIS is an attempt to examine heredity and familial incidence in various forms of insanity and nervous disease. The book has three prominent characteristics. First, and most valuable, is its analectic and bibliographical method: the widespread literature of the subject is well collected. Secondly, a compliment is paid to E. Kretschmer's work, in that his preoccupation with "schizothymic" and "cyclothymic" types of mentality, both normal and pathological, is endorsed and imitated. In the third place, too great persistence is shown in submitting the material to Mendelian analysis, for data of human inheritance are usually much too inexact to warrant such a procedure, or at least to afford reliable inferences therefrom. Many pedigrees are collated at length. The student of pathological heredity should not fail to look through this book, or he may miss some interesting war-time foreign papers on this subject.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXVI., No. 1. Pp. 1–136. January, 1923.—The Relation of Vitamin C to Bacterial Infection, by G. M. Findlay (Edinburgh). Guinea-pigs with an inadequate amount of antiscorbutic in their food and suffering from a chronic form of scurvy are less resistant than normal animals to experimental pneumococci, streptococci, &c., which the author attributes in part to the degenerative changes found in the bone-marrow.—Complement Fixation in Liver Fluke Infection, by N. H. Fairley and F. E. Williams (Melbourne). Infection of sheep with *Fasciola hepatica* may be diagnosed in about three-quarters of the cases by serological tests against extracts of flukes.—The Pathology of Schistosomiasis in Man, by H. R. Dew (Melbourne). Working with material collected in Egypt the author describes the similarities and differences between infections with *S. hæmatobium* and *S. mansoni*.—A Case of Symmetrical Cortical Necrosis of the Kidneys in an Adult Man, by J. Bamforth (London). This well-known but rare condition has hitherto been found only in women.—The Development of Deeply Pigmented Bodies as a Further Stage in Fatty Change in Cell Degeneration, by E. Emrys-Roberts and H. A. Haig (Cardiff).—A Differential Medium for Streptococci, by H. W. Crowe (Harrogate). An illustrated summary of the diagnostic features of different varieties of streptococci grown on the author's "chocolate" medium.—The Desiccation of Serum and Other Proteid Solutions, by P. Hartley, A. J. Eagleton, and C. C. Okell (London). Normal and immune sera can readily be dried and preserved with little if any loss of their specific properties. The satisfactory character of the dried complement is further attested in another paper by C. H. Browning and E. M. Dunlop (Glasgow).—The Relation between Appendicitis, *Oxyuris vermicularis*, and Local Eosinophilia in the Appendix, by the late E. H. Eastwood (Sheffield). *Oxyuris* is often found in the appendix, but it has nothing to do with appendicitis. In an interesting *quantitative* examination of the local leucocyte reaction in appendicitis the author shows that there is at first a sharp increase of neutrophiles, reaching its maximum on the second or third day and subsiding in about 10 days, at which point the eosinophiles reach their maximum and remain far above normal for a month or more.—Foreign Body Tubercles on the Serous Coat of the Stomach Caused by the Escape of Particles of Oat Seed, by T. Shennan (Aberdeen).—Herpetic Encephalitis in Rabbits, by C. Da Fano (London). A long account, with many illustrations and a bibliography of 67 items, of the changes in the brains of rabbits infected with the virus of labial herpes by Dr. J. R. Perdrau. The changes are very analogous to those found in natural and experimental lethargic encephalitis. The "minute bodies" are fully described and figured and cautiously identified with the virus.—Tomato Extract as a Culture Medium, by C. E. Jenkins (Manchester). The meat of ordinary culture media may be replaced by tinned tomatoes.—On Making Dilutions of Antisera, by J. S. C. Douglas (Sheffield). It is necessary to wash out a pipette an extraordinary number of times before one can be sure that all traces of serum have been removed.—The Serum Constituents responsible for the Sachs-Georgi and Wassermann Reactions, by T. J. Mackie (Cape Town). The two reactions depend on protein fractions which can be separated from one another, and are therefore independent.—Alterations in the Characters of *Streptococus mucosus* and Pneumococcus *in vivo*, by C. H. Browning and R. Gulbransen (Glasgow). The slimy character of *S. mucosus* is largely lost in mice. Very minute doses of highly virulent pneumococci may give rise to chronic septicæmia in mice lasting several weeks.—The Influence of *B. coli* on the Growth of *B. typhosus* in Brilliant Green Media in Typhoid Carriers, by R. P. Smith (Glasgow). The stools of typhoid carriers may contain strains of *B. coli* which inhibit the growth of the typhoid bacillus in a very definite way.—A Case of Plasma-Cell Myeloma, by A. F. B. Shaw (Newcastle). A solitary tumour of the humerus without Bence-Jones albuminuria.—The Effect on the Liver of Coal Tar Applied to the Skin of Rabbits, by J. Davidson (Edinburgh). In acute cases degeneration and necrosis succeeded in chronic poisoning by cirrhosis and nodular regeneration.—Peroxide Formation by Bacteria, by J. W. McLeod, J. Gordon, and L. N. Pyrah (Leeds). *Bacillus bulgaricus* and *B. acidophilus* produce hydrogen peroxide.—Inhibition of Opsonic Activity in Tuberculosis and a Modified Opsonic Technique, by S. L. Cummins and C. M. Acland (Cardiff). Using the percentage of active leucocytes as an index the authors describe "zones of inhibition" which are revealed by working with different dilutions of serum.—A Method of Performing the Wassermann Reaction Without the Use of Alien Complement, by A. Gough (Leeds).—Observations on Tularæmia, by J. C. G. Ledingham (London). The minute organism is difficult to cultivate and the strain is best carried on by guinea-pig passage, in doing which three members of the staff of the National Collection of Type Cultures have already become infected. When it can be detected in the tissues of animals it is present in enormous numbers and an emulsion of the spleen of infected mice can be used for diagnosis in man by agglutination.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 3, 1923.

ALCOHOL AND INSANITY.

THE danger of mistaking proof of mere antecedence for proof of causal influence is strikingly shown in the exaggerated beliefs that have long been current with regard to the rôle of alcohol in the causation of insanity. Alcoholic excess is tolerably widespread in the community, and is therefore likely to be of common occurrence in persons who become insane; it is, moreover, a condition which is fairly easily ascertained in a patient's history. It accordingly bulks very largely amongst the alleged causes of insanity in asylum tables; and through the uncritical acceptance of the data in these tables as evidence of causal relation and not of simple coincidence, alcoholic intemperance has come to be considered as a peculiarly important ætiological factor in insanity, whatever be the clinical form of the disease. Thus we find it confidently laid down in text-books of psychiatry that alcohol stands in the first rank as a factor in the production of insanity, and statistical precision has been given to a similar though less extravagant view in official reports which assert that intemperance is the assigned cause of mental disease in 22·7 per cent. of the cases of male patients and in 9·4 per cent. of the cases of female patients admitted to asylums in England and Wales. These estimates have not, of course, escaped criticism. Sir FREDERICK MOTT, in particular, has drawn attention to the unreliability of the asylum evidence in their support, and to the extent to which it is vitiated by the personal equation of the medical officers who record, and of the friends who furnish, the details of the patients' histories and habits. And he has reinforced this destructive criticism by the remarkable results of pathological research at Claybury Asylum and Charing Cross Hospital, which showed that the morbid conditions characteristic of chronic alcoholism were relatively rare in the bodies of the insane, and when met with were almost always found in cases which in life had presented the clinical features of the distinctively alcoholic psychoses, such as Korsakow's disease and alcoholic dementia, while, on the other hand, the cases of advanced cirrhosis of the liver amongst hospital patients rarely exhibited any mental symptoms. And other investigators, approaching the question from a different angle, were led to adopt a similar attitude of scepticism, when they observed that a comparison of alcoholism and insanity in respect of their regional distribution in this country showed a complete absence of correspondence between these two phenomena. They found, moreover, that the proportion of cases of insanity ascribed to intemperance was in many instances conspicuously high in areas where there was least chronic alcoholism, though it is presumably the chronic intoxication which should mainly produce disease of mind. Such cases were notably frequent where the insanity rate was lowest, though an added alcoholic influence might be expected to raise that rate.

From such facts it was difficult to draw any other inference than that the influence of alcoholism as a cause of certifiable insanity was very much less than had been alleged, and that it was limited to the relatively small group of disease forms exhibiting characteristically alcoholic features in the clinical picture—that is to say, delirium tremens, Korsakow's disease, Eifersuchtwahn, and alcoholic dementia. This conclusion has been confirmed in a very striking way by the evidence obtained during the war in this and other countries where restrictive liquor legislation and shortage of the food materials used in brewing and distilling brought about a rapid and extreme reduction of alcoholism. In a letter published in THE LANCET of Sept. 23rd, 1922, Dr. W. C. SULLIVAN, medical superintendent of Broadmoor State Asylum, pointed out that under the influence of these conditions, intemperance, as measured by convictions for drunkenness, deaths from chronic alcoholism and from cirrhosis of the liver, and cases of attempted suicide, had decreased by about 80 per cent. from 1913 to 1918, but that, despite this enormous reduction of alcoholism, the number of first admissions of women to asylums in England and Wales showed no decline, but on the contrary a slight increase. The facts regarding the male population pointed to a similar conclusion, but here the disturbing influence of the withdrawal of large numbers of men of military age from civilian life might have been suggested to be a factor qualifying the value of the statistical comparison. The evidence which has recently become available from the enemy countries is in striking agreement with these facts of English experience. Thus in a very fully documented paper [1] J. PERETTI (Düsseldorf) gives figures showing that in the large asylums and clinics in Prussia there was in 1918 as compared with 1913 a decrease in the number of alcoholic patients amounting to 87 per cent. in the case of males and to 78 per cent. in the case of females. The distribution of this decrease over the several forms of alcoholic psychoses was as follows: In males a decrease of 93 per cent. in delirium tremens, of 87 per cent. in the allied conditions of acute alcoholic hallucinosis, of 90 per cent. in chronic alcoholic degeneration, and of 68 per cent. in pathological drunkenness (Rauschzustände); in females, a decrease of 89 per cent. in delirium tremens, 83 per cent. in hallucinosis, 76 per cent. in alcoholic dementia, and 69 per cent. in pathological drunkenness. But this enormous diminution in the definitely alcoholic psychoses was not associated with any corresponding effect on the frequency of the ordinary forms of insanity. To test this point PERETTI compared the movement of the two classes of psychoses as shown by the returns published in the Prussian official statistics from 1913 to 1916—the latest date for which information was available. He found that, while there was a decrease in 1916 of 26 per cent. in the number of admissions for non-alcoholic psychoses in men—apparently due in large part to the decrease of the male civilian population through the demands of military service—the reduction in admissions for alcoholic disorders amounted to 73 per cent.—that is to say, was nearly three times as much as the diminution in the ordinary forms of insanity. And in women, where the disturbing influence of army service was absent, the figures showed a complete parallel with the results recorded in England, a decrease in the alcoholic psychoses of 56 per cent. being accompanied by an actual though slight (1·4 per cent.) increase in the non-alcoholic types of insanity. K. BONHOEFFER (Berlin), W. SCHNEIDER (Cologne), and other observers, dealing with statistical material from individual provinces in Germany, have arrived at the same results; while WAGNER-JAUREGG has recorded evidence to the same effect from Austria.

[1] Allgemeine Zeitschrift für Psychiatrie, 1921–22.

Thus it will be seen that the results of the mass experiment of the war have completely confirmed the view that intemperance is not to be regarded as an important factor in the general causation of mental disease, and that, in fact, the only insanity produced by alcohol is alcoholic insanity—that is to say, those definite and well-recognised forms of mental disorder which present the specific clinical characteristics indicative of their alcoholic origin. In other forms of insanity, in paranoia, for instance, or in dementia præcox, there may, of course, in many cases be a history of hard drinking; but the only legitimate inference from the fact is, not that alcohol produced the mental disorder, but merely that it failed to prevent its development. These considerations, it should be noted, apply only to the connexion of alcoholic excess and insanity in the individual drinker; they do not touch the question of the possible rôle of parental alcoholism in the causation of degenerative mental disorders in the offspring. In regard to this there is positive evidence of considerable cogency, reinforced indirectly by the results of animal experiment and pathological observation. Through this indirect mode of action alcohol may make a very serious contribution to the burden of insanity; and even if this were not the case, the part which it takes in the causation of crime and of suicide and in the production and aggravation of physical disease would be sufficient to constitute intemperance a grave danger to the well-being of the community. But it is not necessary to load the indictment against an admitted evil by exaggerating its pernicious influence, as is done when alcohol is asserted, in its immediate action, to be one of the chief factors in the causation of mental disease. We may have long to wait for much positive knowledge regarding the ætiology of insanity, but the obscurity of the problem is diminished by the dissipation of erroneous doctrine.

THE GENERAL MEDICAL COUNCIL AND THE D.P.H.

THE new resolutions and rules drawn up by the General Medical Council for Diplomas in Public Health have now been embodied in the regulations for obtaining this diploma, and will come into force on Jan. 1st, 1924. They involve far-reaching alterations both in the curriculum and in the time at which this diploma can be obtained, and these are likely to influence very adversely the number of candidates entering for it. The first most notable alteration is that no candidate can be admitted to Part II. of the examination until he can produce evidence of having been in possession of a registrable qualification in medicine, surgery, and midwifery during not less than two years, and of having completed the curriculum for the diploma extending over a period of 12 calendar months subsequent to the attainment of a registrable qualification. The second important change is that the candidate must produce evidence of having been engaged during a period of not less than six months in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of a medical officer of health, and of having received from such officer or other competent medical officer during not less than three hours on each of 60 working days practical instruction in those duties and also those relating to (*a*) maternity and child welfare service, (*b*) health service for children of school age, (*c*) venereal diseases service, (*d*) tuberculosis service, (*e*) industrial hygiene, and (*f*) inspection and control of food, including meat and milk. This certificate must be obtained from a medical officer of health who devotes his whole time to public work, or from a medical officer of health of a sanitary area having a population of not less than 50,000, or, in Ireland, from the medical superintendent officer of health of a county or county borough having a population of not less than 50,000.

It is probable that the effect of the first of these changes, whereby a period of at least two years must elapse after qualification, of which only one need have been devoted to the study of public health (since the curriculum is fixed at 12 calendar months), will be to limit this diploma practically to those proposing to enter the public health services. It may be presumed that this was the intention of the General Medical Council, since it is difficult to see any other reason for this rule. Even if we assume that it is hoped that the extra year will be spent in hospital appointments or in special studies connected with public health matters, the regulations do not enforce anything of the sort, and the candidate may use this year in any way he desires. If it be supposed that the intention is to secure a highly-trained and specialised type of medical practitioner for the public health services, the regulation may deprive these services of some men of outstanding ability but limited means, who may be unable to devote two extra years, after the long course necessary for qualification, in order to take a diploma, with only the chance of securing some whole-time appointment afterwards. An even more serious aspect of these changes, in our opinion, is the hardship imposed on at least three classes of medical men for whom a special knowledge of public health and hygiene is a useful, indeed a necessary, possession. The first class comprises officers in the Royal Army Medical Corps. Both in peace and in war time their duties demand a thoroughly practical knowledge of these matters, and although they will doubtless receive from the army authorities instruction in hygiene and preventive measures, they are now to be deprived of the possibility of attending the curriculum and obtaining the diploma, which many have been able to secure. Hitherto, work done under a sanitary staff officer of the Royal Army Medical Corps, having charge of an Army Corps, District or Division, has been recognised by the General Medical Council. By the new regulations, such work will no longer count as part of the curriculum. A second example of hardship would be the case of a newly-qualified practitioner taking up medical duties in a colony in a tropical or subtropical region the "tour of service" of which is four years. Unable by the regulations to take the diploma before starting his duties, and anxious to try for it on his first leave, he may perhaps be granted an extra six months' study leave in addition to his ordinary health leave of eight months, making 14 months in all. Allowing two months for his journey home and back to duty, he would have to devote the whole of the remaining 12 months to the curriculum, leaving no time for real holiday, which his health would in all probability demand. A further disadvantage is that the habit of study and the facility for examination are often materially altered by an interval devoted to ordinary duties, and it would probably require some determination and strength of character to face the work entailed after four years' service, perhaps in an unhealthy and unfavourable climate. Thirdly, Indian and Colonial students qualifying in this country are also likely to be inconvenienced by the extra year demanded after qualification. This is certainly regrettable: the home country has always taken a prominent part in the development of the

science of public health, and it is much to be desired that students from all parts of the Empire should be encouraged to pursue their studies in hygiene here as well as in their native lands.

Still further difficulties are placed in the way of Indian and Colonial aspirants for this diploma by the second regulation, to which we have drawn attention. It would seem that instruction given by a sanitary officer in India, in the British Dominions, and the Colonies will not be accepted, since the Committee of Management of the Examining Board in England of the Royal Colleges of Physicians and Surgeons has been informed that the whole course of training under a medical officer of health, to cover all the subjects mentioned in this paragraph, must be carried out under one and the same officer in one and the same area. The list of subjects is such that it is unlikely they can be studied together elsewhere than in this country. We venture to hope that representations may be made to the General Medical Council with a view to some modifications in these regulations, so that the hardships and restrictions to which we have drawn attention may be removed.

THE PREVENTION OF HEART DISEASE.

As progress is made in our knowledge concerning the causes of disease, the importance of adopting effective preventive measures becomes more and more evident. In the case of tuberculosis this has already received ample recognition, but in heart disease we are still inclined to devote most of our attention to remedial treatment. Not only in simple rheumatic cases but also in malignant endocarditis, a disease in which so many different lines of treatment have met with so little success, must we look to prevention as the most likely source to yield more satisfactory results. Three articles on heart disease appear in the present number of THE LANCET. They deal with very different aspects of the subject; but all three point to the same conclusion—the fundamental importance of preventive measures.

The statistics of Drs. J. COWAN and J. K. RENNIE show that out of 49 fatal cases of chronic valvular disease, in which the cause of death appeared to be primarily cardiac, in 39 an acute endocarditis was found at autopsy. From these figures it would appear that myocarditis, associated with acute reinfection of the cardiac valves, is one of the commonest causes of death in such cases. The writers suggest that, in order to prevent reinfection of valves which are the seat of chronic endocarditis, it is not sufficient merely to eradicate any source of sepsis, but that an effort should be made to keep the patient continually fit, by submitting him to what practically amounts to a very mild form of continuous athletic training. Dr. F. J. POYNTON would carry the argument a step further. He records an extremely interesting series of cases which appear to form connecting links between simple and malignant endocarditis. He maintains that, in one type of the latter disease, the causative organism is either identical with, or closely allied to, that which is responsible for rheumatic infection, and that such cases are examples not of superadded infection on a previously damaged valve, but rather of the reawakening in a more virulent form of organisms which for a time have remained dormant. In this connexion there arise two extremely difficult problems. How far are we justified in classifying all cases of acute endocarditis of obscure origin as rheumatic? And in such cases how are we to ascertain when the healing process is complete? In the present state of our knowledge the answer to the first of these questions can hardly be conclusive. For even an associated polyarthritis, although closely resembling true rheumatism, is not necessarily rheumatic, whereas when endocarditis is the only sign, the evaluation of its significance is still more difficult. From the practical aspect of treatment the second question is of even greater importance. Clinical manifestations, such as the disappearance of an apical diastolic murmur referred to in Dr. M. O. RAVEN'S paper, may be highly suggestive that healing has taken place, but in many cases the evidence is insufficient to justify us in coming to a definite conclusion. This state of uncertainty is by no means satisfactory. The problem is one of far-reaching practical importance and calls for further investigation. From the economic standpoint rheumatic heart disease is one of the most important causes of wastage in man-power, owing to the frequency with which it gives rise to total or partial incapacity during the productive years of life.

There may be some who will not admit the existence of a rheumatic malignant endocarditis, but even so the frequency with which organisms attack valves previously damaged by rheumatism, and the large percentage of cases of chronic valvular disease in which reinfection or reawakening of infection, as the case may be, is directly responsible for the fatal issue, cannot but give us cause to hope that some effective preventive measures against simple rheumatic carditis will lead to a considerable diminution in the incidence of the more serious condition. Complete and prolonged rest is the essential element in preventive treatment. The required duration of this rest can only be ascertained by a large series of careful clinical observations. That there should be available greater facilities both for treatment and for observation of such early cases is an urgent necessity at the present time.

THE AFTER-EFFECTS OF EPIDEMIC ENCEPHALITIS.

IN the course of the initial investigations carried out in 1918 by the Local Government Board and the Medical Research Council into epidemic encephalitis, certain manifestations, such as an alteration in the mental condition, residual cranial nerve palsies, athetoid movements, and paresis were observed in a limited number of patients who, in other respects, had recovered from their attacks of illness; a guarded opinion was expressed as to the possible risk of after-effects in the disease.[1] Unfortunately, this warning has been fully justified and accentuated in the progress of time by further observations. In the representative examples of juvenile cases, exhibited at a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on Jan. 26th, and reported in our present issue, the crippling and serious effects that may ensue on acute epidemic encephalitis were demonstrated and the subsequent discussion emphasised that the "new disease" brings in its train sequelæ both of neurological and medico-legal importance. At the same time a work by Dr. GABRIELLE LÉVY[2] reaches us, embodying her researches in the service of Prof. PIERRE MARIE at the Salpêtrière. Dr. LÉVY has investigated 129 cases of after-effects,

[1] Local Government Board: Report of an Inquiry into an Obscure Disease, Encephalitis Lethargica. New Series, No. 121, 1918, p. 31.

[2] Lévy, G.: Contribution à l'étude des manifestations tardives de l'encéphalite épidémique. Paris: Vigot Frères. 1922, Pp. 314.

77 of which occurred in females. All ages were considered from three cases below 10 years of age to two cases above 60 years. Seventy cases exhibited the condition known as symptomatic paralysis agitans or the Parkinsonian syndrome; this, therefore, was the preponderating type in the series. Forty-three cases were classified as "excito-motor"; cases in this group showed choreiform movements, myoclonus and hiccup, bradykinesia and localised movements of the face. One case exhibited the remarkable spasm of torsion resembling spasmodic torticollis; ten cases of the respiratory form were collected, one case of hemiplegia, and four cases of post-encephalitic obesity. Dr. LÉVY gives an excellent description of the types and a detailed account of the associated signs and symptoms which she has studied and sub-classified with care. Sixty-eight cases are recorded in detail. In a pathological section, the author has investigated four fatal cases of the Parkinsonian syndrome and finds that inflammatory lesions may be still active, especially in the mesencephalon and in the neighbourhood of old lesions due to acute encephalitis. This discovery accords with the work of LEVADITI, HARVIER, NETTER, and DURAND concerning the prolonged persistence of the virus of encephalitis.

The manifestations of the after-effects of epidemic encephalitis may be grouped: (*a*) into those appearing in the course of the original acute malady and persisting after partial or complete disappearance of all other symptoms; and (*b*) those which ensue after the original acute malady has apparently terminated, or, in some cases, has passed unrecognised. Such effects are declared after a latent period of extreme variability ranging from some weeks to over two years. In one or two cases reported by Dr. LÉVY the after-effects cleared temporarily but reappeared some months later. No definite opinion, therefore, can be expressed until after the lapse of some years as to whether an attack of acute encephalitis, however mild in appearance, may or may not result in serious sequelæ. The great frequency of the Parkinsonian syndrome is a marked feature in the continental literature; it is difficult to affirm at present whether this preponderance also obtains in this country, owing to the fact, as stated by Dr. C. P. SYMONDS at the discussion, that the acute illness passes unrecognised and un-notified in many cases. Once declared, however, the late manifestations cannot be overlooked. Fewer instances of disease are more pathetic than the juvenile cases of paralysis agitans, now familiar to the neurologist, since 1919; and alike in children and adults the Parkinsonian syndrome must be regarded as the gravest of sequelæ. At all ages mental symptoms complicate the clinical picture, and we do not yet know whether the syndrome merges into the classical chronic disease, previously solely observed in elderly adults. Prof. MARIE and Dr. LÉVY, whilst admitting many points of resemblance, lay stress on certain points of distinction of which the slow evolution of the malady and the age of the patient in paralysis agitans, perhaps, are the more important. SOUQUES, however, at the Congress conducted by the Société de Neurologie de Paris in June, 1921, maintained the identity of the two forms of disease. With regard to the excito-motor sequelæ, Dr. LÉVY points out the rhythmical character of many of the movements, the marked incidence of hypertonus, the distinctions between bradykinesia and myoclonus, and the inhibitory influence of sleep upon these phenomena. The duration of this group of after-effects is variable, but appears to be always long; some movements, such as bradykinesia, seem to disappear in the course of one to two years; in certain patients myoclonus has persisted for over four years. Of still graver significance is the fact that any of these movements may develop into symptomatic paralysis agitans.

The protean manifestations of the post-encephalitic state have not yet been exhausted, but brief allusion can only be made here to the local sequelæ, such as hypertonus, paresis, hemi-paresis, subjective sensory symptoms, trophic changes, the cases resembling disseminated sclerosis, described by SOUQUES and others, and the curious respiratory spasms of which Dr. H. C. CAMERON showed a good example at the recent meeting. Occasionally, true Cheyne-Stokes respiration has followed on epidemic encephalitis. It is important that attention should be directed to the mental after-effects of the disease which, in all probability, are dependent upon cortical lesions; they occur both independently of, and in association with, the after-effects previously mentioned. Irritability, maniacal outbursts, hebetude, complete change in moral character and self-control, lying and theft, may appear for the first time in the victim of encephalitis, as well as grosser mental defects, which result in the patient's rapid transference to an asylum. In the former class of case the patient may commit offences which render him amenable to legal punishment, and the medico-legal significance of these manifestations cannot be over-estimated. Hitherto, both in this country and abroad asylum control has appeared to be indicated in all severe examples. It will be noted that the experience of Dr. F. C. SHRUBSALL, in the London County Council schools, leads to a more hopeful view of the juvenile case; he finds that if the child is placed in a suitable environment and under special educative influences the majority of the milder types of mental defect resulting from acute epidemic encephalitis can be permanently cured.

ZINC POISONING.

A SUDDEN outbreak of illness occurred recently amongst the inmates of a large institution near London which indicates the danger which may arise from the use of galvanised iron vessels for cooking purposes. About 400 persons were served at tea with hot stewed apples. The remainder of the meal consisted of bread and margarine and tea. Within a few minutes more than 200 of those who partook of the stew complained of dizziness, sickness, or a feeling of sickness, colic, and tightness in the throat. There was some diarrhœa, but no double vision. The medical officer at once administered doses of bismuth and chalk mixture, and within a short time most of the sufferers had recovered and were able to take supper at 7.45 P.M. Only 10 persons were at all seriously ill, and all of them were able to carry out their ordinary work next day, so that obviously the effects of the poisoning soon passed off. The apples were freshly gathered and were stewed in large galvanised iron "skeps" which were placed in iron steamers. The skeps were used because it had been found on a previous occasion that the apples became black if placed directly in the steamers. A chemical examination of some of the stewed apples remaining over from the meal showed that they contained 7 gr. of zinc expressed as zinc oxide per pound—this being equivalent to 25 gr. of hydrated zinc sulphate to the pound. The emetic dose of zinc sulphate is 10–30 gr. and each person consuming the stew may be assumed to have taken 18–20 gr. of sulphate of zinc.

It is well known that vegetable acids are prone to act on metals, and the cause of the outbreak in question hardly seemed in doubt from the first. But expert scientific opinion states that vessels of galvanised iron should never be used for containing food materials in view of the solvent properties which many of these possess for zinc. It seems well that the general public should be aware of this fact.

Annotations.

"Ne quid nimis."

JENNER CELEBRATION IN PARIS.

A STRIKING appreciation of the work and life of Edward Jenner was manifested in the ceremony held last week by the Académie de Médecine. On Jan. 23rd a *séance solennelle* was devoted to honouring the memory of the discoverer of vaccination. The Council of the Academy marked the importance of the occasion by wearing the richly embroidered court suit with cocked hat and sword, and the Government signified its interest by the presence of Mr. Strauss, the Minister of Hygiene. The international entente was also marked by the presence of the First Secretary of the British Embassy, replacing Lord Crewe, who was detained by other duties. After the opening remarks of the President, Prof. Chauffard, a communication on the history of vaccination was made by Dr. Camus, director of the Institut Supérieur de Vaccine. Dr. Pierre Teissier followed with an address demonstrating the benefits secured since *la méthode de Jenner* had become obligatory. Thus, while small-pox had claimed numerous victories during the war of 1870, this terrible disease was almost unknown in the French armies during the late war. Dr. Jeanselme followed with a record of the introduction and results of vaccination amongst the natives of French colonies. Striking results had been obtained even in the absence of sanitary improvements, the natives being won over by the instruction of native doctors in the technique. The Secretary of the Academy, Prof. Achard, then read a long list of addresses, messages, and warm expressions of admiration sent from all parts of France, as well as from Belgium, Switzerland, Holland, Italy, and Spain. Most European countries were represented, while the Bey of Tunis had sent his own physician. The delegate from the Royal Society of Medicine, Sir StClair Thomson, gave a short address in French, returning thanks for the honour paid to British medicine and rendering homage to Pasteur as the connecting link between the work of Jenner and Lister. He remarked that "sans Pasteur, Lister serait resté inconnu. Sans Jenner, ce médecin de campagne, qui sait—le grand œuvre de Pasteur serait, peut-être, resté stérile?" The President accepted the gift of a proof engraving of Hobday's well-known painting of Jenner, offered by Dr. Walter S. A. Griffith, who presented the original to the Royal Society of Medicine. The meeting concluded with a lantern demonstration of pictures of Jenner and scenes associated with his life, many drawings being shown—artistic as well as humorous—connected with the introduction of vaccination. In another room of the house of the Academy there was an exhibition of other Jenneriana. In the evening a dinner was given by the President and Council of the Academy to the foreign delegates and visitors, Mr. Strauss being seated on one side of the President and the First Secretary of the British Embassy on the other. After dinner speeches were delivered by Sir Almroth Wright, Sir Ronald Ross (delegate of the Royal Society), and Dr. R. O. Moon (delegate of the Royal College of Physicians of London). The occasion was noteworthy for the whole-hearted honour paid to Jenner, the appreciation of his life and character as well as his work, and the cordial and sincere affection shown to his country and his compatriots.

A WASSERMANN MICRO-TECHNIQUE.

IN the current number of the *British Journal of Dermatology and Syphilis* appears an article from Dr. R. Donald on a micro-determination of the Wassermann reaction. The results obtained by this method are closely comparable to those obtained by the ordinary Wassermann test. Details of his original technique appeared in THE LANCET[1] in 1916; it is a one-tenth scale transposition of the well-known method of McIntosh and Fildes. The author rightly points out that one of the chief assets of his technique is the small amount of serum required for each test, a fact which makes the method of great value in the examination of infants. In addition, the use of easily calibrated drop pipettes for measuring the various ingredients of the test save much labour and time. In the present communication further evidence is produced of the value of the micro-method as a time-saving device. It is pointed out that owing to the very small quantity of complement required in the test, the same guinea-pig can be used as a supply of complement for many months. During the whole of this period the complement content of the guinea-pig serum was found to remain constant, a fact which allows the author to dispense with the routine titration of complement as a preliminary to the test proper, as only the initial determination of the titre of the complement is necessary.

[1] THE LANCET, 1916, ii., 423.

THE HYGIENE OF COWSHEDS.

A REPORT prepared for the public health and housing committee of the West Riding County Council has just been issued by Dr. J. R. Kaye. The report is of particular interest in showing means by which county councils, in spite of their lack of direct statutory powers in regard to cowsheds and dairies, may nevertheless exercise a far-reaching and beneficent influence on the supervision of milk-supplies. The question of a pure milk-supply was before the sanitary committee of the county council in its earliest days; the sanitary surveys of the Riding which were begun in 1895 revealed a great deal of apathy amongst local authorities with regard to their duties in connexion with the lighting, ventilation, drainage, &c. of cowsheds—duties placed upon them by the Dairies, Cowsheds, and Milkshops Orders and Regulations of 1885 and 1886. In 1901 the committee's action culminated in the preparation by the county medical officer of a set of suggestions, which were ultimately approved, after amendment, by the land agents of the principal landowners in the Riding, and issued to local authorities for their guidance. In 1906 the county boroughs of Leeds, Bradford, Sheffield, and Rotherham, and the county councils of the East and West Ridings, caused a joint investigation to be made into the causes and sources of the contamination of milk, which showed that the greatest amount of contamination took place at the farm. Leaflets were thereupon prepared and distributed to householders and to persons connected with the supply and distribution of milk. No doubt the leaflets were of value in effecting improvement; and the improvement would have been greater than the facts recorded below imply had this policy been more thoroughly backed by all the sanitary authorities directly concerned. However, dirty milk is still being produced; in Dr. Kaye's report to the committee in September, 1922, it was shown that of 179 samples examined, 41 contained from 20 to 30 parts, 14 from 30 to 40 parts, and six over 40 parts per million of centrifuged fluid dirt. The present report states that there are in the West Riding administrative county 151 sanitary authorities (including two new districts for which records are not available) which have control of the cowsheds in their areas. In these 149 districts (and in that multiplicity of authorities lies the secret of the failure to get pure milk) 6507 registered cowkeepers have 9229 cowsheds, with accommodation for 51,283 cows. Officers of the sanitary authorities have to inspect all registered cowsheds in connexion with structural requirements and cleanliness of the premises, and conditions and health of the animals, especially with regard to tuberculosis of the udder. A table shows that 91, or 61 per cent., of the 149 districts made less than two inspections per annum, involving 5114 cowkeepers (78 per cent. of the total in the Riding), 7199 cowsheds, and 40,429 cows (79 per cent. of the total cows in the Riding). Thus there are to be found a large number of insanitary cowsheds,

subjected to altogether inadequate inspection, and much dirty and tuberculous milk. Other tables show that rural districts are much less careful than urban districts in the matter of inspection. During the last two years the survey of three Poor-law unions has been completed, and 847 cowsheds have been inspected; an analysis is included, giving the Board of Agriculture's requirements in the matter of cubic space, ventilation, lighting, flooring, drainage, and water-supply, together with the actual findings of the county staff. A glance at this analysis shows the justification for Dr. Kaye's concluding paragraph, in which he urges the need for: (*a*) a great improvement in the sanitary construction of cowsheds—many of the buildings now in use were never intended for cowsheds, and cannot without reconstruction be made fit for their purpose; (*b*) better inspection of cowsheds to secure greater cleanliness, and careful inspection of the cows for the detection of unhealthy or definitely tuberculous animals. Dr. Kaye is to be congratulated on a valuable survey which deserves more than local consideration.

TULARÆMIA AND ITS CONGENERS.

THE *Bacterium tularense* was first described by McCoy and Chapin as the cause of a severe epizootic among ground squirrels in the Tulare district in California about ten years ago. A few years later it was identified by Wherry and Lamb as a cause of human disease, the first cases to attract attention showing a severe form of conjunctivitis, from which the organism was recovered. Within the last two or three years it has been established that infection is widespread among jack-rabbits in Utah and that it is not infrequently transferred to man, causing an undulant fever lasting several weeks with considerable general depression and malaise; fatal cases are almost unknown. The bacillus is pathogenic to many species of mammals—rabbits, mice, guinea-pigs—and experimentally infection can be acquired by close contact or through the agency of a variety of biting insects—blood-sucking flies, lice, fleas, bugs, acarids—which seem to act merely as mechanical transporters and inoculators without playing any necessary part in the life-cycle of the organism. It is suggested that infection is kept up among wild rabbits by the common rabbit-louse *Hæmodipsus*.

Naturally infection in man occurs among agriculturists or market men who handle or dissect infected rabbits. But since the discovery of the bacillus it has been characteristic that many laboratory workers who have dealt with it have been infected. The recent annual report of the Medical Research Council, and a short notice by Prof. Ledingham in the last number of the *Journal of Pathology and Bacteriology* (vol. xxvi., p. 133), remind us that in their efforts to maintain the virus in the National Collection of Type Cultures at the Lister Institute, Dr. St. John Brooks, Miss Rhodes, and Dr. Schütze successively took the disease. They are now happily recovered, more or less. The organism is difficult to grow on artificial media, and its continued maintenance by this means is rather speculative. It is hence customary to carry it on by passage in animals, and it is this procedure which has habitually proved so dangerous, and which, by a brave discretion, has been given up by the Institute. How exactly infection is taken is not known. The organism is very small—plainly visible under the microscope but not much larger—and occurs in the tissues of some infected animals in such enormous numbers that emulsions of their organs may be used like cultures for diagnosis by agglutination tests. Animals are not easily infected except through abrasions of the skin, which in these human cases can presumably be excluded.

It is noteworthy that one of the other few organisms with which laboratory workers have often been infected—the *Micrococcus melitensis*—is also very small and gives rise to an illness of something the same type as tularæmia. The *Bacillus abortus* of epizootic abortion in cattle, which is indistinguishable from *M. melitensis* in culture, occurs intracellularly in the uterus in prodigious numbers, just as *B. tularense* fills the liver-cells of the mouse. Cultures of bacteria are generally harmless enough. The tubes of media, found lately in the Brixton-road, were more curious than significant, and the man who stole the blue bacillus would probably have been no nearer clinching his argument about the rights of man by a violent water-borne epidemic if it had really been, as he supposed, a culture of the cholera vibrio. But *Bacterium tularense* seems to offer possibilities, at any rate, for a novelist's drama in a sporting country house.

SPECIMENS BY POST.

THE value and variety of laboratory investigations in relation to medicine are increasing so rapidly that as an inevitable result extraordinary numbers of pathological specimens are nowadays transmitted by post. The Postmaster-General is again calling attention to regulations, framed for the protection of the postal staff and of other mails, but which are broken with considerable frequency. On page 264 we print the essential part of the official requirements, and we would emphasise here the fact that, besides subjecting public servants to annoyance and sometimes to risk, improper packing results in complete and immediate destruction of the contents together with all wrappings and every enclosure. It seems to be generally realised that letter post only is available and that the package must be clearly marked "pathological specimen," but central laboratories remark how often the receptacle containing the material itself is not properly enclosed and steadied within a strong, impervious, and preferably metal case. When the glass comes to grief it is usually through inadequate outer protection. All laboratories which deal with a large number of postal specimens send out postal containers complying with the regulations, and arrange to provide the practitioner with a returnable stock of these things. Should these not be to hand, a tin well lined with cotton-wool may be requisitioned just as readily as the unsatisfactory cardboard box, and these facts should be explained to patients who are instructed to send off their own specimens. Haphazard transmission of materials from private houses is one of the chief sources of trouble. We are glad to learn that further perfection of postal outfits is under consideration by the laboratories themselves, and a few points taken from their suggestions may help to illustrate the degree of care which this matter demands. Tins with turn-down clips or metal fastenings, liable to break off and damage the hands of sorters and postmen, or to injure other contents of the mail, will be done away with in favour of screw-on or internally secured lids. Envelopes commonly used to hold metal swabs are being made from specially untearable material and secured by metal clips so that pressure cannot possibly break the paper and allow the contents to escape. The absorbent material within the containers will be impregnated with antiseptic. Also each inner receptacle (bottle, swab, &c.) will be clearly labelled as to its pathological content, so that, should it by chance escape, its nature will still be obvious. When these further improvements have been made, the standard laboratory outfits should, of themselves, meet the most exacting requirements. Their routine employment would avoid specimens getting "lost in the post."

TESTICLE TRANSPLANTATION.

Richard Mühsam,[1] from the Rudolf Virchow Hospital in Berlin, reports his experience with transplantation of the testicle in the human subject. He has performed the operation on five individuals.

The first was a castrated and impotent man aged 25. In April, 1918, the transplantation was carried out, in November of that year libido appeared, and in March, 1919, he married. Coitus took place regularly every two to three weeks, and he felt perfectly well. His voice, which was previously high, became deep, and the prostate became

[1] Deut. med. Wochensch., Oct. 6th, 1922.

normal in size. The second patient was a man aged 26 with bisexual inclinations. From the tenth to the twenty-eighth day after operation he experienced strong heterosexual desire, and two months later the first coitus took place. He married and is now father of a child. The third case was a 26-year old homosexual man. Five days following transplantation and removal of one testis he had heterosexual dreams, and in the next week took an active interest in a young woman. Circumstances did not, however, permit of greater intimacy, and the desire gradually diminished until he became once more completely homosexual. A second operation was carried out two months after the first, and shortly afterwards he had a heterosexual dream, but then returned once more to his previous condition. Six months later he developed a temporary sensitiveness towards women, followed by a complete and lasting return to homosexuality, and he became resigned to his fate. The fourth case was a homosexual individual, in whom no change took place until six months after the operation, when increasing interest in women developed and remained. He now considers himself as normal. The last case was a eunuch, dwarf and obese. One to two months after operation he experienced numerous erections, which had previously been absent, but they did not last, and he soon returned to his former state.

Thus, out of five cases three could be said to have been successful and two had no result. In discussing the cases Mühsam mentions the experiments by Förster and others who have removed the transplant at a later date and found that necrosis invariably occurred. While recognising the probable truth of these observations, he suggests that in his cases possibly enough of the tissue survived to produce sufficient secretion to carry out the male functions, and he supports this theory by reference to the work of Lipschütz,[2] who showed that in young guinea-pigs, if all testicular tissue is removed save 1 per cent. of the weight of the two testes, the animal develops normal male characteristics. The histological appearance of the remaining portion resembles that of a testis after ligature of the vas deferens (Steinach's operation) of a cryptorchid, or of a transplanted or X rayed testis. Mühsam discusses also the possibility that suggestion plays a part in the favourable results, but he discounts this probability, as in each of his cases extensive psychotherapy had been previously carried out without success. The rapid improvement in the second case is, indeed, remarkable and suggests a psychic factor, but in the fourth case the patient himself had given up all hope of improvement and doubted the possibility of success. Subsequent to the operation he received no further psychic treatment, but his feelings changed so markedly that he was obliged to cast off his pessimism and to express entire satisfaction with the operation. In the two unfavourable cases it must be noted that temporary phenomena occurred which the patients had never previously experienced. The homosexual patient developed a strong attachment to a woman, and Mühsam thinks it possible that had this attachment been carried to its conclusion the change might have been permanent. The eunuch experienced erections for the first time, but they did not last. The inference in these cases is that some secretion from the testis was absorbed by the patient in the early stages before necrosis set in.

Observations are also being made by Curt Pariser in Woltersdorf-Berlin[3] on the action of a new preparation of testicular tissue which he has brought out, with which he claims that effects can be obtained similar to those seen after Steinach's operation. Pariser argues that whereas after Steinach's operation there is in the early stages marked improvement in the patient's condition, this is only temporary, possibly due to congestion of the organ, and is followed by a complete cessation of hormone formation, with a sudden and permanent collapse of the patient. By substituting a preparation which can be administered internally, careful dosing may be undertaken, and overdosing, with symptoms of testicular intoxication (sometimes noted after Steinach's operation), can be avoided. The preparation is known as rejuven masculinum (rejuven femininum is still under preparation) and is taken in the form of tablets of 0·05 g., corresponding to 3·5 g. of fresh gland substance. The choice of cases is important, as in all other forms of treatment. Little or no result may be expected in patients with complete or almost complete atrophy of the testicles. In cases of early senescence the best results are to be expected, the signs of rejuvenation including the regrowth of hair of the patient's normal colour, instead of grey or white, recovery of the elasticity of the skin and other tissues, and increase in physical strength. The power of mental concentration improves, the appetite becomes strong, and the weight is increased. Arteriosclerosis is materially benefited, the blood pressure falling 20 to 30 mm. Hg. Sexual power usually returns early in the treatment for a short time, but is not permanent. Pariser, however, does not consider this as the chief aim and object of the treatment. He maintains that the chief indications for treatment are failing physical powers, arteriosclerosis in its early stages, senile cataract, and early senile dementia. A latent period of three to six weeks or longer is always present. The end of the latent period is marked by certain symptoms—namely, great general unrest, irritability, increase in anginal pains, if these were present before, strong sexual and other dreams of an exciting nature. In one case the patient did not dare to take the three tablets ordered daily because he noticed that he was troubled with dreams if he did so. When these symptoms appear, and they are to a certain extent symptoms of overdosing, the treatment is discontinued for one to three days, and then recommenced with two tablets daily, increased in six to seven days to three. It is, however, seldom that the latent period is closed entirely without sexual dreams, and in some cases libido and potency are increased to youthful strength. Pariser thinks that the sequence of events from Steinach's operation to the use of rejuven has followed that of the first transplantation of the thyroid in myxœdema to the use of thyroid extract. These reports are of especial interest as they come at a time when organotherapy is being strongly condemned in this country by some of our leading thinkers.

[2] Deut. med. Wochensch., 1921, No. 13, and Pflüger's Arch., clxxxviii., heft. 1/3.
[3] Deut. med. Wochensch., Oct. 13th, 1922.

ANAPHYLAXIS AND IMMUNITY.

THERE is sometimes confusion over the apparent contradiction that an animal enters upon the anaphylactic state at the same period as its blood develops those properties which are indicative of the state of immunity—that is to say, that immunity and supersensitiveness can and do exist in the animal body at the same time. In a recent number of the *Annales* [1] of the Pasteur Institute, S. Metalnikov has examined this phenomenon and put forward its rational explanation. After reviewing the general nature of the anaphylactic phenomena, and their widespread incidence in nature, the author states that the essential for their production is an increased cellular sensibility, which is, as is well known, one of the most widely accepted current views upon anaphylaxis. This sensibility is essentially of the nature of a protective phenomenon, the cells which have once been damaged by a particular agent reacting, on a subsequent occasion, more energetically to the presence of this agent. To prove the presence of this increased cellular activity the author has introduced capillary tubes filled with the antigen in question both into the peritoneal cavity and beneath the skin of animals which have received sensitising doses of the same antigen some weeks previously, and are therefore sensitised from the anaphylactic point of view, and have developed immunity from the immune point of view. Removal of these tubes some 10–12 hours later shows that in the sensitised animals they have become stuffed with emigrated leucocytes whilst in the control normal animals the leucocyte immigration has been minimal. This, of course, is a result which would have been expected from the classic researches upon phago-

[1] L'Anaphylaxie et l'immunité, par S. Metalnikov, Annales de l'Institut Pasteur, vol. xxxvi., No. 9, September, 1922.

cytosis; its clinical demonstration in anaphylaxis is in the Arthus phenomenon, where a local subcutaneous injection of the specific antigen, in a sensitised animal, leads to a violent reaction and a pronounced local accumulation of motile cells.

On the other hand, where the animals have been desensitised and their sensibility removed by a slow introduction of the antigen into the veins in a manner which does not give rise to anaphylactic shock—where in Besredka's phase they are in the anti-anaphylactic state—the experiments with capillary tubes do not succeed, the previously anaphylactic animals behaving in the same way as the normal ones. This is a phenomenon which can be imitated in experiments on chemiotaxis with protozoa; the organisms, or the leucocytes in the human subject, have gorged themselves with the antigen in question and have lost all the special sensibility towards it when presented with it at a later date. Upon the assumption of the importance of cellular activity in these phenomena the findings of Roux and Besredka, of their inhibition by anæsthetics and narcotics, are readily explicable. Such facts as we have already touched upon have been studied chiefly in the leucocytes, which are especially readily examined, but they are representative of the body cells, and the same phenomena undoubtedly apply to most of these cells, which are altered in their potentialities for response to infections by a previous exposure to such an infection. This fact finds its proof in the demonstration of anaphylaxis in the isolated organs of sensitised animals, which was first carried out by Schultz, and at a later date by Dale in this country; a fact which can be demonstrated in organs freed of blood by perfusion.

The conclusion is that anaphylaxis and immunity are but different sides of one and the same phenomenon—a process which has for its end the protection of the subject. Where a subsequent infection is only moderate the obvious result is resistance, which depends upon "immunity"; but where the second infection is of overwhelming intensity, as in the highly artificial conditions realised in experiments on anaphylaxis, this same reaction takes place in an ultra-violent fashion and untoward results occur; this is "anaphylaxis," dependent, in strict parlance, not on supersensitiveness but upon an increased protective reaction.

THE FUNCTION OF CAROTINOIDS IN ANIMALS.

OF recent years much work has been done on the pigments, which range in colour from yellow to red, and which are contained in ethereal extracts of many plant and animal tissues. Luteins, lipochromes, lipoxanthins, chromolipoids, and carotinoids are names which have from time to time been suggested for this group of colouring matters, and some confusion has been caused by the use of different names for the same substances. The considered statement on the present position of the subject, which has recently been offered in the form of a monograph by Prof. Leroy S. Palmer,[1] will interest many workers in biological chemistry. The author prefers to call the whole class of these pigments the chromolipoids; one widely distributed member of this class is the pigment carotin (spelt *carrotene* by the English Chemical Society); very many others are closely related to carotin, and are therefore called carotinoids. The two most important classes of carotinoids are carotins, which are hydrocarbons either identical or isomeric with carotin $(C_5H_7)_8$, or $C_{40}H_{56}$, and xanthophylls, which are oxy-carotins—e.g., $C_{40}H_{56}O_2$. The first animal chromolipoid to be isolated was the pigment of the corpus luteum. In the cow this is known to be carotin, though in other animals its identity is a matter for future work to decide. The pigments of the blood plasma may be either carotin or xanthophyll, or, in man, both of these; these are not the sole pigments, however, because in man and in the horse some bilirubin may also be present. When the milk fat is pigmented this is due to the passage of the chromolipoids of the plasma into the milk, and the same is true of the pigmentation of adipose tissue, internal organs, nerve cells, and, to some extent, the skin. In diabetics, for example, it is stated that the skin may be pigmented with carotinoids; the author suggests that this is in part due to lack of the normal oxidative mechanism by which the carotinoids are destroyed in the body. The carotinoids are transported from place to place in the body with the fats, and it has more than once been suggested that these substances are identical with the fat-soluble vitamin. A critical review of the evidence on this point shows, however, that the substances cannot be identical; though in plant tissues, but not in animal tissues, there does seem to be a close correlation between the occurrence of vitamin A and carotinoids. The similarity of distribution between lipochrome pigments and the fat-soluble accessory food factor was pointed out in our own columns by O. Rosenheim and J. C. Drummond,[2] who came to the conclusion from their experiments and from a survey of other work that the association was not one of identity. It would seem, therefore, that animals possess the power of separating these substances one from another. In plants the carotinoids appear to have definite functions, especially as light filters; though there is no evidence that they originate from chlorophyll, they assist this substance in the work of carbon assimilation. In animals they appear to have no function. They are derived from the food, ultimately from plants therefore.

[1] Carotinoids and Related Pigments: The Chromolipoids. By Leroy S. Palmer, Ph.D., Professor of Agricultural Chemistry, University of Minnesota. American Chemical Society, Monograph Series. New York: Chemical Catalog Company, Inc. 1922. Pp. 316. $4.50.

A PLENARY HEALTH INSURANCE CONFERENCE.

A CONFERENCE of bodies interested in the medical service of the National Health Insurance Acts met in the Council Chamber of the Guildhall, London, on Tuesday and Wednesday of this week. The conference was called by the Insurance Acts Committee of the British Medical Association, and Dr. H. B. Brackenbury, as chairman of this Committee, presided over it. Delegates from 16 groups of Approved Societies attended along with representatives of Insurance Committees and their Clerks, and from the Retail Pharmacists' Union, and the whole membership of the Insurance Acts Committee. Dr. Brackenbury, in his opening address, described the gathering as the first plenary conference of National Health Insurance. The Acts, he said, were both complicated and incomplete, but they provided the machinery for making their officers aware of imperfections. The time was premature for a comprehensive inquiry into the effect of the Acts on the health of the people; war, demobilisation, and unemployment had successively interfered with their normal working. But the doctors were no longer antagonistic, disciplinary action was having its effect upon the less zealous, and additional benefits were beginning to mature. "We who work the Acts," he said in conclusion, "are met here to pool our experience, to discuss our difficulties, and to create a better atmosphere." In this spirit of mutual forbearance and frank exchange of view the three long sittings were spent. The subjects discussed were:—

1. Title to Benefit—introduced by Sir William Glyn Jones.
2. Efficiency of Service Rendered—by Sir Thomas Neill.
3. Certification—by Dr. H. G. Dain.
4. Supply of Drugs and Appliances—by Mr. G. A. Mallinson.
5. Work of Regional Medical Officers—by Dr. E. K. Le Fleming.
6. Extension of Services—by Dr. Brackenbury.

[2] THE LANCET, 1920, i., 862.

7. Sickness Benefit—by Dr. H. F. Oldham.
8. Deposit Contributors—by Dr. H. S. Beadles.

It was evident from an early stage of the proceedings that the conference did not consist of two groups—medical and lay—with well-defined and divergent views. Most of the extremer criticism of the medical service was met by speakers from the same benches. For instance, when the grievance was ventilated that the insured person who wished to see the principal was often put off with an assistant, it was pointed out from several sides that the training of assistants in insurance practice was not only natural and inevitable, but also in the best interests of the insured person. The need for increased waiting-room accommodation was admitted all round, but no one was able to put forward any specific remedy for queues of patients. Perhaps greatest unanimity was present in respect of the failings of the insured person himself—who was unrepresented as such at the conference—and the suggestion to supply a model lesson for school-leavers on the privileges and duties of health insurance was warmly welcomed. The immediate outcome of the conference was the unanimous decision to appoint a standing committee to consider the suggestions made at the conference, and other points that might arise, with a view to improving the services rendered to the insured person—the committee to report to a later conference. It was agreed that the constitution of the standing committee should be six representatives of approved societies, six of the medical profession, four of insurance committees, and two of pharmacists.

WE regret to announce the death on Jan. 28th of James Ritchie, M.D., F.R.C.P. Edin., Irvine Professor of Bacteriology in the University of Edinburgh.

THE opening ceremony in connexion with the Maudsley Hospital, Denmark Hill, was performed on Wednesday morning by the Minister of Health, Sir Arthur Griffith-Boscawen.

AT the Royal College of Physicians of London the following lectures will be delivered on Tuesdays and Thursdays, at 5 P.M. Milroy Lectures by Dr. W. G. Savage on Canned Foods in Relation to Health, Feb. 22nd, 27th, and March 1st. Goulstonian Lectures by Dr. Geoffrey Evans on the Nature of Arterio-Sclerosis, March 6th, 8th, and 13th. Lumleian Lectures by Dr. Arthur J. Hall on Encephalitis Lethargica (Epidemic Encephalitis), March 15th, 20th, and 22nd.

PASTEUR CENTENARY.—In connexion with the centenary, a lecture on Pasteur will be delivered to-day (Friday) at 4.30 P.M., in the rooms of the Royal Society, Burlington House, London, W. 1, by Dr. Pasteur Vallery-Radot, Médecin des Hôpitaux de Paris, grandson of the scientist. Sir Charles Sherrington, P.R.S., will take the chair. The lecture is the first of a series to be delivered during a tour of Great Britain; the tour has been organised by the Alliance Française with the support of the councils and health officers of the towns to be visited.

FELLOWSHIP OF MEDICINE.—Representatives from the staffs of the hospitals interested in the establishment of a scheme of post-graduate education in London have been invited by the Fellowship of Medicine to a conference to be held at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W., on Feb. 8th, at 5 P.M. The aim of the conference is to discuss how far the Fellowship of Medicine can continue to promote the cause of post-graduate instruction and hasten the time when a permanent and comprehensive organisation in London is an accomplished fact.

A course of seven practical lecture-demonstrations on Certain Diseases of Children will be held during February at the Children's Clinic, Western General Dispensary, Cosway-street, N.W. 1, on Tuesdays and Fridays, at 5 P.M. The first on Feb. 13th and the last one on March 5th will be given by Prof. Sir William Bayliss and the other five by Dr. Bernard Myers, whose concluding lecture will be devoted to the Nervous Child, as seen in General Practice. The fee for the course is one guinea and copies of the syllabus can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole-street, W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

V.—THE TREATMENT OF SCABIES AND PEDICULOSIS.

THESE two parasitic diseases of the skin require, as a rule, only external treatment, and, if this is correctly carried out, they can usually be eradicated without much difficulty. The question often arises in private practice whether or not it is advisable to tell a patient that he or she is suffering from a parasitic infection, since most people regard all skin eruptions as loathsome, however "pretty" they may appear to the dermatological eye, and have a peculiar horror of the two diseases under consideration. Moreover, the pathetic state of mind known as parasitophobia may date from an actual infection with one of these, although more commonly it arises from a faulty interpretation by a disordered mind of a pruritus due to a non-parasitic cause. My own opinion is that, unless, perhaps, one is dealing with a highly neurotic or imaginative person, it is better to explain clearly in non-medical terms the cause of the eruption, how it was probably acquired, the risk of contagion, and the method by which one proposes to cure it. The modern patient of intelligence is not easy to bluff, and one is more likely to render him hypochondriacal by suggesting that his scabies is due to gout or indigestion, which he will probably regard as incurable, than if one tells him the truth and assures him of a complete cure within a short time.

Scabies.

The diagnosis of scabies, easy as a rule among the poorer classes, may be difficult owing to the paucity of lesions in those who take a daily bath. There may be no evidence of the disease on the hands and wrists, and in private practice the elbows, the anterior axillary folds, the abdomen, *the skin over the ischial tuberosities*, the knees, the ankles, the nipples in women, and the penis in men are the parts most likely to be affected. The finding of a typical "burrow," with or without a female acarus within it, is certain evidence of scabies; also the diagnosis can be made with confidence from the appearance and distribution of secondary lesions.

Once the diagnosis is established it is essential to determine, preferably by inspection, whether any other members of the household are affected; not uncommonly the disease is introduced into a family by servants or nurses, who may act as constant sources of reinfection. Obviously the treatment of all affected persons in the house must be carried out at the same time. The three-day cure with sulphur ointment, which proved so successful in the army during the war, is usually effectual if conscientiously carried out, and Dr. A. Whitfield recommends the addition of cyllin: ℞. Cyllin, m. 20, ung sulphuris, B.P. (half strength), ad ℥i; balsam of Peru (m. 40, ad ℥i) may be substituted for the cyllin. The Danish method of treatment is, however, preferable, since for it only 24 hours are necessary, and the percentage of cures is equally high or even higher. The ointment used was devised by Marcussen, and its preparation is somewhat complicated. For private practice it is simpler to use the commercial form, which has been put on the market under the name of "Kathiolan."

The technique of the treatment is as follows: The patient takes an ordinary hot bath, lasting from 10 to 20 minutes, in which he lathers himself well with soap; after drying, he rubs the ointment thoroughly into the skin of the entire body from the neck downwards. He then dons pyjamas or a suit of underlinen, his hands and feet are kept covered in stockings so that the ointment is not rubbed off, and he retires to bed. Twenty-four hours later another bath is taken, fresh or disinfected clothing is put on, and the cure is complete. Bed linen and underclothing should, of course, be disinfected in the usual

way. For patients who cannot afford to spend 24 hours in bed, I usually advise application of the ointment for two or three nights in succession. A certain amount of irritation, and in seborrhœic subjects a mild sulphur dermatitis may follow this treatment, but these rapidly subside when a dusting powder or soothing cream is used for a few days; in my experience sulphur dermatitis is less frequent and less severe than with the three-day ointment cure.

Whichever method is employed the patient must be emphatically warned against using the sulphur preparation for longer than the prescribed time, and he should be told that, if irritation of the skin is still felt after the treatment has been properly carried out, it will almost certainly be due to the sulphur and not to the acarus. In spite of warning many patients persist in continuing their sulphur inunctions until a violent dermatitis results. In my experience non-success in the treatment of scabies by either of these two methods depends usually on: (1) faulty technique, such as applying the ointment only to certain parts where the eruption is most evident; (2) reinfection either from imperfectly disinfected clothing, or from other persons in the household who have been left untreated.

Pediculosis.

Pediculosis Capitis.—Diagnosis of this disease is seldom difficult, as the ova are easily found if diligently sought for. In cases without severe secondary infection the parasites and most of the ova may be destroyed by the thorough application of petroleum; this should be well rubbed in until the hair is saturated and the head should then be enveloped in a towel for a night. In the morning the scalp should be shampooed, and the ova may be removed with a fine comb, their removal being facilitated by the application of dilute acetic acid (5 per cent.). As an alternative to the use of petroleum the following method, advocated by Dr. Whitfield, is simple and absolutely reliable: The hair is saturated with a hot solution of carbolic acid (1 in 40), the patient, if a girl, lying on her back with her head projecting over a basin placed on a chair. The hair is placed in the basin into which the carbolic solution is poured over the head from before backwards. The excess of fluid is squeezed out of the hair, which is then enveloped in a towel and left from one to two hours, before being dried completely. In cases in which a severe impetiginous or eczematous dermatitis is already present at the first consultation, it is better to remove the crusts and subdue the inflammation by means of hot fomentations of boric acid lotion or a ½–1 per cent. solution of lysol, applied at night, and a 1 per cent. mercurial ointment under a linen cap during the daytime. After the destruction of the parasites and ova the secondary impetiginous infection usually clears up rapidly; if necessary, the scalp may be shampooed every three or four days with a 2 per cent. solution of lysol, and a weak mercurial ointment (ammoniated mercury or the yellow oxide 1–2 per cent. in vaseline) applied. It is, of course, advisable to sterilise hats and caps by stoving, and brushes in a hot lysol solution.

Pediculosis Corporis.—Our knowledge of the habits and activities of the body-louse was materially advanced during the war. Previously, although the fact had been noted, it was not generally recognised that this parasite may lay its eggs on the hair of the pubis and other parts of the trunk as well as on the clothing; sterilisation of the latter, therefore, is not necessarily sufficient, since auto-reinfection may occur. Individual susceptibility to louse infection varied greatly in different subjects.

The lesions characteristic of pediculosis corporis, apart from pigmentation, are linear scratch marks (contrasting with the pin-point follicular marks of scabies), ecthymatous sores ("linear impetigo"), and abscesses formed from infected bites, which differ in appearance and in the colour and consistence of their purulent contents from ordinary boils. The distribution of the lesions is almost pathognomonic, the parts affected being the shoulders and *posterior* axillary folds, the sacral region and *upper* parts of the buttocks, and the outer surfaces of the thighs and legs. In scabies, it should be noted, the back is usually relatively free from lesions, and the *anterior* axillary folds and the *lower* parts of the buttocks are involved, but the two diseases may, of course, be coexistent. Occasionally—probably in persons who have never before been infected—the body-louse produces an acute eruption of small, red, intensely itchy papules, which may be distributed over most of the trunk and upper segments of the limbs, and a febrile reaction may occur, presumably in response to the toxin injected by the parasite.

The treatment of pediculosis corporis is simple, but, of course, in those who live in infested dwellings or doss-houses reinfection is sure to occur. A hot bath, followed by a few inunctions of an ointment containing ammoniated mercury (2 per cent.), stavesacre (ung. staphisagriæ, B.P.) or sulphur (2–3 per cent.), together with thorough disinfection of the clothes and bed-linen, is all that is necessary. The secondarily infected lesions should be treated by frequent bathing, evacuation of abscesses, removal of crusts, and the subsequent application of a weak mercurial ointment. It cannot be said that any very satisfactory method of preventing pediculosis was discovered during the war. Divisional baths and steam sterilisers were available to some extent. In civilian life clothing and bed-linen should be boiled when practicable, and the remainder heated in an oven to a temperature of 160°–175° F.

Pediculosis Pubis.—Infection with this variety of louse is very common. Those who become infected often diagnose their complaint correctly, and fly to the traditional blue ointment—sometimes thereby provoking an acute mercurial dermatitis. It must be remembered that, although the pubis is the region usually first involved, the parasites soon invade the axillæ, and in hirsute persons the lanugo hair of the whole trunk and limbs may harbour them. More rarely the eyelashes and beard become infected. Apart from the irritation it occasions, the pediculus pubis may in certain persons produce characteristic oval bluish spots, which are macules (maculæ cæruleæ) and do not fade on pressure. At one time they were thought to be symptomatic of typhoid or typhus fever. They are caused, as Duguet's experiments with crushed crab-lice showed, by the pigment introduced by the parasite when feeding, but it would seem that only certain affected persons develop them. Although the crab-louse—like the acarus—is often acquired through indiscriminate sexual intercourse, it may also be transmitted by w.c. seats and articles of clothing.

Blue ointment is not to be recommended owing to the risk of mercurial dermatitis. The method I usually advise is to apply pads of lint, soaked in a 1 in 40 solution of carbolic acid and covered with oil silk and bandage, to the affected regions for an hour or so. On removal of the pads the parasites are found dead and adhering to the lint. Subsequently it is wise to employ a weak mercurial ointment for a few days, lest any ova should have escaped destruction by the carbolic acid. Petroleum or xylol are equally efficacious and kill the parasites instantly, but I have never yet failed to cure a case rapidly by means of a carbolic solution and a weak mercurial ointment. The beard may be treated in the same way, but when the eyelids are affected it is best to pick off the parasites and as many ova as possible with forceps, and to apply the oculentum flavum B.P.C. continuously until a cure is obtained.

H. W. BARBER, M.B. Camb., F.R.C.P. Lond.,
Physician in Charge Skin Department, Guy's Hospital.

SUMMARY OF PREVIOUS ARTICLES.

Previous articles in this series have appeared in THE LANCET as follows:—

Jan. 6th: I. The Medical Treatment of Gall-Bladder Disease, by Sir Humphry Rolleston.
Jan. 13th: II. The Treatment of Early Pulmonary Tuberculosis in the Young Adult, by Dr. Claude Lillingston.
Jan. 20th: III. The Treatment of Neuralgias of the Head and Neck, by Dr. Wilfred Harris.
Jan. 27th: IV. The Treatment of Whooping-Cough, by Dr. T. Izod Bennett.

Special Articles.

VENEREAL DISEASES IN NEW ZEALAND.

THE Committee of the New Zealand Board of Health, appointed in July, 1922, by the Minister of Health to inquire into the subject of venereal diseases in the Dominion, have now issued their report. They remark that the carrying out of their task had brought them into contact with some uninviting aspects of the social life of New Zealand, and that some of the facts disclosed should give serious concern to all who had the welfare of the country at heart. The information is included that, during the war, of 135,282 New Zealanders examined after the introduction of the Military Service Act, who were mostly young men, only 57,382, or, roughly 42·5 per cent., could be accepted as fit for training. This serves to remind Englishmen who found food for disquieting thought in the difference between the average physique of Colonials and of Home troops, that the propagation of the unfit by the unfit is a world-wide problem. The Committee find it impossible to say what proportion of defectives are the direct product of venereal disease, but "there is clear evidence that a tendency to lead dissolute lives is especially noticeable in the females belonging to this unfortunate class. . . . Obviously some method of dealing with mental defectives—by segregation or otherwise—must be found as part of the problem of dealing with venereal disease."

Conclusions.

Some of the conclusions drawn by the Committee are as follows:—

There is very general ignorance among the public on the subject of venereal disease, which has stood in the way of its being effectually grappled with. Syphilis not only causes direct loss of life, but many deaths ascribed to other causes in the Registrar-General's returns are due to its after-effects, which are responsible for many still-births and abortions, are seen in surviving children, and may persist until the third generation. Gonorrhœa, popularly supposed to be a comparatively mild complaint, is regarded by medical men as being no less serious than syphilis; it is difficult to cure, especially in women, unless treated at the outset, and is a great cause of sterility in both sexes.

Owing to the absence of accurate statistics it is impossible to compare the incidence of venereal diseases in New Zealand with that in other countries, or to observe its increase or decrease. One person in every 428 of the population of the Dominion—3031 in all—is the figure given for persons being treated by registered medical practitioners for venereal disease in some form, or for its after-effects. At the clinics since their establishment 3634 patients have been treated (3038 males, 596 females). Dr. J. F. S. Hay, Inspector-General of Mental Hospitals in New Zealand, computes the number of persons now in the Dominion who have or have had syphilis to be 33,000, or 1 in every 38 of the population. The Committee state, however, that in their opinion no exact estimate of the prevalence of venereal diseases can be obtained until some accurate system of obtaining statistics has been adopted; but they feel assured that venereal disease is sufficiently prevalent to call for energetic action. Evidence was given which showed that children with mental and physical defects due to venereal disease might become a charge on the State, and that a proportion of them on being released became the parents of defective children, who have also to be supported at the public expense. Such defectives have little sexual control, and are usually very prolific.

According to the Commissioner of Police there are only 104 professional prostitutes in New Zealand, but there is a great deal of "amateur" prostitution, which is chiefly responsible for the spread of venereal diseases. The evidence points to a good deal of laxity of conduct among young people of all social conditions, especially in large towns; this is generally attributed by witnesses to the weakening of home influence and the restlessness of the age. Apart from the disease among those who indulge in promiscuous intercourse, innocent wives are in many cases infected by their husbands, and in a few cases innocent husbands are infected by their wives. Children suffer innocently from venereal diseases, not only by inheritance from infected parents, but by accidental contact with germs on towels, &c., which have been used by a patient. Cases also come before the courts where disease has been directly conveyed in crimes of violence by sexual perverts.

The free clinics in the chief centres, conducted by experts, are doing good work, but their influence is greatly hampered by the fact that a proportion of the male patients and the majority of the female patients leave off treatment before they are cured. There is no power, as the law stands, to compel them to continue treatment, and in many cases they resume promiscuous intercourse and spread the disease. Some persons suffering from disease do not seek medical treatment, and communicate it to others; these persons also cannot at present be restrained from such conduct or compelled to receive medical treatment.

Recommendations.

The Committee emphasise in the strongest terms the duty of moral self-control, and urge the cultivation of a healthier state of public opinion. The stigma at present attached to sufferers from venereal disease should be transferred to those who indulge in promiscuous sexual intercourse. There is too little realisation of parental responsibility in the matter of sex instruction of children, and too little parental control generally in New Zealand. The Committee recommend the training of teachers and provision for appropriate instruction in schools.

Classification and, where necessary, segregation of mentally defective adolescents is recommended, together with the following measures for preventing and combating the disease: Clinics to be open continuously; every effort to secure privacy at clinics; a specially trained nurse to be in attendance at women's clinics, and, where possible, women doctors to be secured; provision for prompt preventive treatment; "lady patrols" appointed in other centres to perform the work now carried on by them in Christchurch. In the light of the good work, especially along educational lines, now being done by the Social Hygiene Society in Christchurch, voluntary work of the same kind elsewhere would be very helpful.

The Committee are entirely opposed to the continental system of licensed brothels, or a revival of the C.D. Acts in any shape or form. They recommend legislation providing for what is known as conditional notification of venereal disease, by which it will be the duty of a doctor to notify to the Health Department, by number or symbol only, each case of venereal disease he treats; if a patient refuses to continue treatment until cured, and will not consult some other doctor or attend a clinic, it will then be the duty of the doctor to notify the case to the department by name. If the patient continues recalcitrant and refuses to allow himself to be examined by the medical practitioner appointed by the Director-General of Health, then the latter should be empowered to apply to a magistrate for the arrest of such person and his detention in a public hospital or other place of treatment until he is non-infective.

The Committee also recommend further provision to deal with cases where persons suffering from venereal diseases are not under medical treatment and are likely to infect others. If the Director-General has reason to believe that any person is so suffering he may call on that person to produce a medical certificate, which may be procured free of

charge at any hospital or venereal disease clinic. If the person refuses to produce such a certificate he or she may be taken before a magistrate, who may order a medical examination. Penalties, including detention in a prison hospital, should be provided for recalcitrant cases. The proceedings in all such cases should be held in private unless the defendant desires a public hearing.

The Committee recommend that before a licence to marry is issued the intending parties must sign a paper answering certain questions as to freedom from communicable disease and from mental disease, and must make a sworn statement that the answers to such questions are true. They recommend the adoption of a provision in the Queensland Act making venereal disease a ground for annulling a marriage contracted whilst one party is suffering from a venereal disease in an infectious stage, provided the other party was not informed of the fact prior to marriage. It should be the duty of a medical practitioner attending a case of venereal disease, if he believes that his patient intends to marry, to warn him or her against doing so, and if he or she persists, to notify the case by name to the Director-General of Health, whose duty it should be to inform the other party, or the parents or guardian of such party. Such communication made by the doctor or by the Director-General of Health should be absolutely privileged.

The Committee recommend that the law prohibiting treatment of patients for venereal disease by unqualified practitioners should be strengthened, and suggest that the Pharmaceutical Society might assist in preventing such practices.

Moral and Social Aspects.

The Committee believe that conditional notification and compulsory treatment along the lines suggested will not be prejudicial to women in any way, but that women will reap the greatest benefit from such measures. The only persons in the community who will be penalised by the proposed legislation will be those who, having contracted venereal disease, are so reckless and unprincipled that they will take no pains to avoid communicating it to others. The Committee, it is evident, regard the legislative and medical measures which they propose as of great importance, but they earnestly emphasise the moral and social aspects of the question, especially the duty of parents towards their own children, and the duty cast upon leaders of public opinion and upon the community at large to do what is possible to bring about better conditions of living, particularly for girls in the towns, to encourage all forms of healthy sport and amusement, and to cultivate a higher moral standard. "Whatever sanitary laws may be passed, and whatever success may be attained in dealing with bodily disease, there can be no true health if the soul of the nation remains corrupt."

TUBERCULOSIS.

Some Remarkable Results of Sanatorium Treatment.

THERE is a deplorable tendency in many quarters to judge sanatorium treatment by its travesties; to blame it when patients, admitted to a sanatorium in an advanced stage and kept there two or three months before being cast adrift, ultimately die of tuberculosis. Sanatorium treatment can, of course, be caricatured into ill-repute, and it is well to give prominence to the results which can be obtained when this treatment is given a fair trial. What a sanatorium can do for its patients is shown by a recent paper by Dr. H. J. Howk, Dr. L. I. Dublin, and Dr. I. A. Knudsen.[1] Their report deals with the sanatorium of the Metropolitan Life Insurance Company at Mt. McGregor. This sanatorium was opened in 1913 for tuberculous employees of the company, whose staff numbers approximately 18,000. The company's sanatorium has 214 beds, and by Dec. 31st, 1920, 953 patients had been discharged. All but 57 were subsequently traced, from one to seven years after discharge. Of these 896 patients, 719, or 80 per cent., were at work; 90, or 10 per cent., were unfit for work; and 87, or 10 per cent., were dead. Of the 585 incipient cases, 545 were traced, and 491, or 90 per cent., were at work. Only 36, or 7 per cent., were unfit for work, and only 18, or 3 per cent., were dead. Of the 317 moderately advanced cases, 221, or 70 per cent., were at work, and of the advanced cases 20 per cent. were at work.

These figures compare so favourably with those of many other sanatoriums that it is well worth investigating the conditions under which the patients at Mt. McGregor were treated. The policy of the company is to rehabilitate the tuberculous employee as completely as possible, and he is advised to remain under treatment until his condition warrants his return to work. The seriously advanced or progressive case is welcome to remain in the sanatorium. The average duration of treatment for incipient cases was 7 months and 1 day, for moderately advanced cases 12 months and 18 days, and for far advanced cases 14 months and 10 days. The average duration of treatment for all the patients was 9 months and 29 days. In the public sanatoriums of the United Kingdom the average duration of treatment in a sanatorium is approximately three months. The difference between three months and ten months is, indeed, enormous. Another important factor is the extent to which the disease has progressed before sanatorium treatment is commenced. Eight years ago the Metropolitan Life Insurance Company instituted a system of annual examination of all its employees. When the sanatorium was first opened the proportion of advanced cases was comparatively high, but their numbers were steadily reduced by the detection of early cases at the annual examination, and by 1920 the proportion of incipient cases admitted to the sanatorium was as high as 70 per cent. Lastly, the company found work for its tuberculous employees within a week of discharge. Usually they went back to their former work, the only change being the receipt of supplementary diets on loss of weight and more frequent medical examinations.

Conjugal Tuberculosis.

A laborious and systematic investigation of the risks involved by marriage of a healthy person to a consumptive has recently been published by Dr. A. de Besche and Dr. J. O. Jörgensen.[2] They searched the notifications of pulmonary tuberculosis to the Health Department in Christiania, and found records of 742 wedlocks in which one of the partners suffered from pulmonary tuberculosis. In the case of 39 of these wedlocks both partners had been notified. In six cases both partners had been notified before marriage. With regard to the remaining 33, it was necessary to ascertain whether there had been signs of tuberculosis before wedlock or not. In 32 of these 33 cases information was obtained as to the conditions under which the patients had lived before marriage. Sixteen of them were found to have grown up in tuberculous surroundings constantly exposed to infection, and of these 16, six had also shown signs of tuberculosis at an early age. The other 16 had, indeed, grown up in healthy homes and had not been exposed to any known source of infection, but five of them had either had enlarged glands as children or had suffered from apical catarrh or pleurisy before wedlock. Thus there remained only 11 cases in which the outbreak of tuberculosis in one partner might possibly be traced to infection by the other partner. Now 11 cases out of 742 is only 1·48 per cent. The authors conclude that there is some risk of infection to a healthy person who marries a patient with open pulmonary tuberculosis. It would, however, be well to point out that little difficulty would be experienced in producing in a town like Christiania many more than 11 adult *unmarried* persons who had

[1] American Review of Tuberculosis, October, 1922.

[2] Norsk Magazin for Lægevidenskaben, December, 1922.

recently developed pulmonary tuberculosis, who had not grown up in tuberculous surroundings, and had not had enlarged glands or other signs of tuberculous infection in childhood. And when these hypothetical cases were compared with the 11 under consideration, the question might well be asked: Why should these 11 cases be regarded as evidence of conjugal infection?

By-Products of Artificial Pneumothorax.

There is probably no exception to the rule that every important advance in science brings certain gains which may seem remote from the immediate products. This point was emphasised during a discussion on artificial pneumothorax at a meeting held on Jan. 8th of the Society of Superintendents of Tuberculosis Institutions. The papers read by Dr. L. S. T. Burrell and Dr. Eleanor Soltau showed that this treatment, dramatically effective as it certainly is, must not be regarded as a measure rendering skilled, careful, and prolonged supervision superfluous. At the discussion which followed it was pointed out that the remote effects, or by-products, of artificial pneumothorax might ultimately prove even more important than the immediate therapeutic results. In the first place, it has led up to the scientific evolution of thoracoplasty—an operation which gives promise of restoring thousands of poitrinaires to comparative health. Another by-product is the influence artificial pneumothorax has had on our conception of the needs of the tuberculous lung—its need for rest and immobilisation rather than for the focal reaction of the tuberculin enthusiast and the auto-inoculation of the advocates of therapeutic exercise. A third by-product of artificial pneumothorax is the fillip it has given to institutional treatment instead of so-called domiciliary treatment. Perhaps this is the greatest achievement of all, for while it has long been recognised that the domiciliary treatment of insanity, fractures, appendicitis, and many other conditions is very unsatisfactory, it has till recently been commonly assumed that it is possible to treat satisfactorily a case of pulmonary tuberculosis at home.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Importation of Foreign Drugs into Roumania.

A RECENT order issued by the Ministry of Public Welfare makes illegal the importation and sale of foreign drugs in Roumania except under the following conditions: The manufacturers or their representatives must apply in writing for a licence, and must indicate the medicinal value of their drugs, stating the composition of the latter both as regards quality and quantity. Chemical analysis of the drug must be performed by a competent analyst, whose certificate must be attached to the letter of application, together with an official certificate to show that the sale of the drug is permitted in the country of its origin. Every package must be labelled in Roumanian with the name and formula of the preparation, and each application must be accompanied by ten samples of the drug.

Distribution of Artificial Limbs to Ex-Service Men.

The Minister of War and the Supreme Board of Public Hygiene, after long deliberation, have issued a proclamation to the war cripples of Roumania (irrespective of nationality or of the side on which they fought) informing them that all those possessing worn-out or otherwise useless artificial limbs should present themselves at the nearest military hospital, where measurements will be taken and a suitable limb supplied. Free railway transport and free board in hospital will be provided where necessary.

Higher Prices of Drugs.

The National Federation of Apothecaries has prepared a new tariff for the sale of drugs, which, having been approved by the Board of Public Health, will come into force on Feb. 1st. Almost every drug will then become dearer, although the present prices are already so high that only the richest class can afford to pay them. For instance, a quantity about equal to 1 oz. of zinc and boric acid ointment costs nearly 40 lei—the price of 3 kg. (6 lb.) of meat. The price of the more commonly used drugs—boric acid, bismuth codeine, cocaine, pantopon (omnopon), iodine—has now been raised by from 10 to 50 per cent. The price of bandages has risen 25 per cent., and that of medicine bottles 100 per cent., although the latter had previously risen 350 per cent. since May, 1922. Some drugs—e.g., aspirin and chloroform—have become cheaper. Apothecaries' charges have not been raised. The constant rise of the price of drugs is explained by the fact that German and other foreign chemical and pharmaceutical factories reckon their prices in stable currencies—i.e., in Swiss francs, pounds sterling, and dollars.

Mutual Non-Recognition of Hungarian and Roumanian Medical Degrees.

Considerable difficulty has arisen owing to non-recognition by the Roumanian and Hungarian Governments of medical diplomas issued in each other's territories. This state of affairs arose from the fact that in Hungary diplomas of Roumanian universities were not, even before the war, regarded as equivalent to Hungarian diplomas; Roumanian universities admitted students matriculating after seven years' gymnasium or lyceum study, while in Hungary eight years of such study were necessary before matriculation. Although the Roumanian medical course lasts five years, the Hungarian Government would not recognise its validity; the Roumanian "reprisal," instituted early in 1922, withdrawing recognition of Hungarian diplomas in Roumania, has seriously affected hundreds of students residing in the newly-acquired parts of Roumania. The latter, of course, speak Hungarian; in the University of Cluj—the only university in Transylvania where Hungarian was formerly used—the Roumanian language has been adopted, and the more advanced medical students, who could not learn Roumanian whilst carrying on their medical studies, naturally went to the University of Budapest to finish their education and obtain their medical diplomas. These students had then to return to their native places, as Hungary, having lost two-thirds of her territory, cannot support all her own medical men; and on coming home they found themselves prohibited from practising, although their own language is still spoken in Transylvania, where even the Hungarian laws are still in force. As the non-recognition of Roumanian diplomas in Hungary was estabished before the war, it does not affect doctors with Roumanian diplomas, who have never settled in Hungary. Unless the Roumanian Minister of Public Instruction withdraws this rigorous order there is nothing left but emigration for these unfortunate Transylvanian medical men.

A Mouse in a Beer-bottle.

Some months ago two merchants, dining in a restaurant at Cluj, found a dead mouse in a glass of the beer which had been served to them. They were both ill for several days afterwards, and claimed from the brewers of the beer a sum of 100,000 lei, on the ground not only that they had been incapacitated by illness, but that they had had to forgo a business transaction which would have brought them at least that amount of profit. The brewers refused to pay any compensation, on the ground that the most scrupulous care in bottling could not prevent such an accident. Thereupon the merchants sued them for damages; medical evidence was given of the gastric disorder resulting from the incident, and the court awarded 25,000 lei to each complainant, also imposing upon the brewers a fine of 5000 lei for neglect of regulations under the Food Act, together with payment of costs.

Public Health Services.

HEALTH OF MANCHESTER IN 1921.

THE retirement of Dr. James Niven was one of the public health events of 1921. His annual reports have for long been regarded as classics. The Manchester health authority, on his advice, have always taken a wide view of their responsibilities, and have been willing to undertake research work of a nature likely to benefit the community as a whole. We are glad to learn that this authority is preparing to publish in book form a review by Dr. Niven of public health work in Manchester and elsewhere during his long term of office. The report[1] for 1921 shows the great advance which has been made in the last 30 years, and at the same time indicates the large amount of work required before Manchester can be regarded as anything like a model city from the health point of view. Dr. Niven says he is little likely to exercise any influence on future policy. We beg leave to differ. His opinions are on record, and his work will survive his official retirement.

Dr. Niven directs notice to the bad policy of tipping organic refuse within the city area. He also draws attention to the serious poverty existing in 1921, and to the slight increase in the death-rate from tuberculosis which is associated with it. He thinks that venereal disease is gradually diminishing, but is not satisfied that adequate measures for prevention are being adopted. In citing the immense amount of work now done in connexion with maternity and child welfare, he expresses his conviction that the great advance achieved has been largely due to the long-continued education of mothers by the health visitors, the maternity and child welfare centres, the schools for mothers, and the school medical officer with his staff. "In this rests the hope that it will continue." State-aided housing schemes had not made much headway at the end of 1921. Formerly the population was being pushed outwards to its great benefit by demolition at the centre and building at the outskirts. This relief to central overcrowding is no longer possible, and the housing conditions of the very poor continue to become more pressing. In spite of these adverse conditions the death-rate for 1921 is the lowest on record, and infant mortality maintains the position which it has gained "but which cannot be regarded as a goal."

Vital Statistics.

Some of the principal statistics for the year were as follows: Estimated population, 744,000. Birth-rate, 23·7. Death-rates per 1000 living: All causes, 13·6; tuberculosis, 1·6; cancer, 1·3; respiratory diseases, including influenza, 3·1. Deaths per 1000 births: Infant mortality, 97; diarrhœa, &c., under 2 years, 21; maternal mortality from childbirth, 3·24. Interesting tables are given reviewing the death-rates from specified causes over a long series of years. There is a striking reduction in the fatality of enteric, typhus, and continued fevers, scarlet fever and small-pox, and, in a lesser degree, of diarrhœa, measles, and whooping-cough. Diphtheria presents no such continuous improvement. Since 1871-75 the general death-rate, infant mortality, and deaths from violence have been halved. Since 1881–85 the death-rates from tuberculosis and diseases of the respiratory and digestive system have been, approximately, halved, but there is no such improvement in urinary disease or diseases of the generative system, or in recent years from puerperal fever and other accidents of childbirth. The death-rate from cancer has more than doubled. Recent improvements in cerebral hæmorrhage, nephritis and Bright's disease, pneumonia, digestive diseases, and "overlying" are attributed in part to the diminished consumption of alcohol, and Dr. Niven thinks "it would probably do much good if the duties on alcoholic liquors were still further increased."

Tuberculosis Mortality.

The war temporarily increased the tuberculosis mortality by the stress on unfit persons joining the army, and by the inducement to tuberculous persons to work in civil occupations. The rapid decline in the tuberculosis mortality since the war has now been interrupted by poverty, diminished nutrition, and overcrowding. Dr. Niven mentions that in the autumn influenza at times simulated scarlet fever, and he also hints at some new factor at work in promoting the autumnal prevalence of scarlet fever, erysipelas, and puerperal fever. About one-quarter of the cases of enteric fever were traced to direct infection, about one-quarter to the consumption of contaminated mussels, and in the remainder the source of infection was untraced. Eleven of the 19 new cases of encephalitis lethargica began in the first quarter of the year. The end-result of 52 verified cases reported during 1920 and 1921 is given: 27 proved fatal; 12 recovered completely; 3 were very ill four months after onset; and of the remaining 10 who had been ill for more than nine months, and showed no prospect of improvement, 3 presented the syndrome of paralysis agitans; 3 showed extreme mental depression and asthenia; 3 had paresis of one or more limbs; and in 1 strabismus persisted, and there was a mental and moral change.

Venereal Disease.

The returns of the V.D. clinics show that one-third of the new syphilis patients and one-half of the new gonorrhœa patients failed to complete a course of treatment, and that only 16 pregnant syphilitic patients received treatment. There were 7068 persons (who had been recently exposed to infection) treated at the early treatment centres, and so far there is no proof that the treatment given has ever failed to protect. The cost of this early protective treatment works out at about 1*s.* 7½*d.* per attendance, and the cost of actual treatment at the clinics at about 4*s.* 10*d.* per attendance. At the end of 1921, 38 Manchester medical practitioners were qualified to receive salvarsan substitutes free of cost.

The Schick test has been carried out at Monsall Hospital in 1200 cases. Some of the conclusions arrived at are: (*a*) susceptibility to diphtheria is greatest from the second to the fifth year of life; (*b*) scarlet fever cases have a slightly increased susceptibility; and (*c*) natural immunity is transmitted from mother to offspring. By the end of 1922 it is hoped that all the Schick-positive members of the nursing staff will have been immunised.

Milk-supply.—Maternity and Child Welfare.

Lieut.-Col. J. W. Brittlebank presents a somewhat gloomy report on the milk-supply, showing that the problem of reducing the incidence of tuberculosis in cattle is no nearer solution than it was 20 years ago. The results of sampling country milk were as follows: 16 per cent. of the Cheshire milk was tuberculous, 4 per cent. of the Derbyshire, and 10·5 per cent. of the Lancashire, while no tuberculous samples were obtained from Staffordshire, Yorkshire, and Westmorland. Of 37 cases of tuberculous milk, tuberculous udders were found on the farm in 26 cases, and in the remaining 11 cases cows were sold in the interval between the taking of the sample and the receipt of the verdict on it.

Turning to maternity and child welfare work, we find that midwives attended 68 per cent. of the births, and sent for medical aid in 4033 out of 11,905 cases. The local authority paid the fee of the medical practitioner in 740 instances, and endeavoured to recover the cost in 348 of these. The proportion of still-births to live-births was 3·4 per cent. The Manchester Corporation obtained powers in their Act of 1921 for the registration of maternity homes, which ought to prove extremely useful. By-laws under the new section were approved in March, 1922.

[1] This report was not received within a twelvemonth of the conclusion of the period concerned, but in view of the special circumstances we make an exception in noticing it in 1923.

Ophthalmia in Newly-born Infants.

A table is given showing the notifications of ophthalmia occurring in the newly-born, and the percentage with corneal complications for the years 1911 to 1921, and that 1921 gives the most favourable percentage—viz., 2·28. The number of cases with corneal involvement was 21. All were treated at the Royal Eye Hospital, and the total damage roll was the loss of one eye in two cases.

The campaign against flies proved a failure, owing to the fact that the manure, although promptly removed from the stables, was stored on allotments, at tips, railway sidings, and iron foundries. In the last-named case the manure is used in the making of cores for hollow castings.

Chinese Eggs.

An investigation has been undertaken, at the instance of the Ministry of Health, as to eggs imported from China. By one method the eggs are dried without preservative, and with care and a quick sale this method is satisfactory. The confectioner may use the dried egg himself. In some cases, however, merchants add water and boric acid at the rate of 2 lb. to 100 lb. of the mixture, and supply the liquid mixture to the confectioner. It is hard to appreciate the need for this middle process. Another method is to dry only the whites in China, and to cask the yolks, adding 2 per cent. of boric acid. On arrival in this country water is added to the dried whites, and they are then mixed with the yolks, more boric acid being added. Various improvements in the methods of handling the eggs are recommended.

Clean Feeding.

An inquiry has been carried out with regard to the methods used for cleansing drinking and eating utensils at public-houses and eating places, and shows that in many instances the methods are anything but satisfactory. As a result of this inquiry a workable appliance for sterilising utensils has been designed by Messrs. Richmond & Co., Warrington, and is on view at the Manchester Corporation Gas Show Rooms, Deansgate.

Manchester does not apparently take smoke abatement seriously. On page 198 we are told that 372 half-hour observations were taken during the year, while the table on page 204 gives the number of observations as only 250.

Correspondence.

"Audi alteram partem."

POST-OPERATIVE "MANIA."

To the Editor of THE LANCET.

SIR,—I have read the account of the above condition by Dr. W. J. Tyson in your last issue and hope I may be permitted to supplement it.

In the first place the title is an unhappy one, for unless the term "mania" be used in a sloppy or semipopular way, it does not correctly describe post-operative insanity, which is a delirious or confusional insanity, as different from mania as an abscess is from a cancer. Of course some people still talk of religious and suicidal "mania" when they mean melancholia, but in the interest of scientific medicine the term mania should be restricted to the elated phase of manic-depressive insanity. In it the patient is, except in the most acute conditions, lucid, not confused, and not usually hallucinated. Further, the causes assigned for this form of insanity, though many and various, are among the most definite, in actual cases, in the whole domain of mental disease. Hereditary predisposition need not be present as in most other forms of insanity, for it is par excellence an acquired insanity. No brain exists but which may succumb to the effects of toxæmia, of exhaustion, or of drugs, provided the action of these be sufficiently intense or prolonged.

The only symptoms mentioned in the case described are, first that the patient's mind began to wander, and then that she quickly became maniacal. "Wandering" is characteristic of delirious, of confusional, insanity and not of mania, so it is presumed by maniacal is meant excitement, which also frequently occurs in delirious or confusional insanity. The characteristics of this form of insanity may be summed up as follows: Definite cause; sudden onset; mental confusion; multiple and vivid hallucinations; variable emotional condition, usually anxiety; excitement or stupor; acute physical illness or prostration; short course; good recovery or death; loss of memory of incidents during illness.

Lastly, though the description is not brought up to date, a full account of this form of insanity and a bibliography will be found in "Cerebral and Mental Symptoms in Relation to Somatic Disease, Anæsthetics and Toxic Agents, Traumata and Surgical Procedures," by J. C. Simpson, M.D. (London: J. Bale, Sons and Danielsson, 1898).—I am, Sir, yours faithfully,

GEORGE M. ROBERTSON.

University of Edinburgh, Jan. 29th, 1923.

HOSPITAL POLICY.

HOSPITAL SAVINGS ASSOCIATION.

To the Editor of THE LANCET.

SIR,—As representing a London hospital at which, after an exhaustive consideration of the scheme put forward by the above association, complete agreement has throughout been maintained between the lay and medical representatives, we feel it our duty to enumerate the following points in connexion with this scheme in the hope that the question may be properly ventilated and more forcibly brought to the attention of those who are most affected by it—the medical profession in London—as well as those otherwise interested in hospitals.

Briefly, the following are, in our opinion, substantial grounds of objection to the scheme, which, it is considered, undermines, whether it succeeds or whether it fails, the very voluntary system which it purports to seek to save:—

(*a*) If the scheme succeeds:—

1. Through the agency of a body chiefly representative of a section of the patients, it involves serious interference with the present independent management of hospitals.

2. It definitely imports, despite all statements to the contrary, an element of insurance risk.

3. The proposed interference with the present almoning arrangements must be to the disadvantage not only of those members of the profession who are connected with hospitals, but also of the general practitioner.

4. The issue is acutely forced as to the payment of the honorary medical staffs and management of hospitals.

We would here emphasise the point that the question of staff funds in the provinces is and must remain an essentially different problem from that of establishing staff funds in London.

5. By its nature, the scheme definitely controverts the existing principles of the voluntary system.

(*b*) If the scheme is put into operation and fails:—

The odium of failure will not fall on the Association, but will probably be borne by and react on the hospitals themselves, thus providing data for those in favour of State or municipal control.

We cannot too strongly condemn representations such as that this scheme involves questions of finance only, or that so far it has received the substantial consideration and unqualified approval of the hospitals of London.

We are, Sir, yours faithfully,

F. W. DAVY,
Vice-Chairman.

HARRY CAMPBELL,
Senior Physician.

West End Hospital for Nervous Diseases, 73, Welbeck-street, London, W., Jan. 29th, 1923.

DEEP X RAY THERAPY.

To the Editor of THE LANCET.

SIR,—The communication to THE LANCET of Jan. 20th on this subject by Drs. R. Morton and H. B. Lee is of particular interest to me in respect of the sequelæ which they mention. At the last meeting of the Section of Electro-therapeutics of the Royal Society of Medicine, I showed that the secretion of mucus by the alimentary canal is interfered with by very small doses of radiation, and that this first change is followed by a bacterial invasion of the tissues, and may account for the subsequent changes which are known to occur, such as necrosis and ulceration of the intestinal mucosa, a disappearance of the platelets from the circulation, and possibly also the destruction of red cells and the cachectic conditions which follow massive doses of radiation. Mucus mechanically protects the tissues from bacteria. Dr. Neave Kingsbury mentioned experiments which showed that a bacterial invasion of the blood-stream followed these intestinal changes, and Dr. W. Cramer spoke of the similarity of the effects of withholding vitamin A, in which similar intestinal changes were found to occur, and suggested the desirability of feeding patients before and after radiation with diets rich in vitamins, with the object of counteracting these deleterious effects of radiation.

My object in writing this letter is to ask whether there is any clinical evidence of these effects of radiation. At the meeting it was mentioned that diarrhœa occurs both in patients and radiologists after large exposures to the abdominal region, and the time of its occurrence (two to three days after exposure) corresponds with my experimental results. It would be of interest to know whether there is in these cases an unusual amount of mucus in the stools. Further, whether either an increase or decrease of mucous secretion has been observed from the nasal and respiratory passages following radiation of the head or thorax. Dr. Morton mentions infection conditions of the lungs and ulceration of the bladder and rectum. At what time after radiation do these infective conditions occur?

It is also of particular interest to know when the anæmia occurs, and its particular characters, and whether a thrombopœnia has been observed. If, as seems probable, many of the sequela of radiation can be referred in the first place to a change in the alimentary or respiratory mucosa, then every endeavour must be made to protect these very sensitive regions from radiation. Also to prepare them for radiation by purgatives, diet, and other favourable conditions, just in the same way as a patient is prepared for a severe surgical operation.

I am, Sir, yours faithfully,

J. C. MOTTRAM,
Director of the Research Department, Radium Institute.

16, Riding House-street, Portland-place, London, W., Jan. 25th, 1923.

THE TREATMENT OF EARLY PULMONARY TUBERCULOSIS IN THE YOUNG ADULT.

To the Editor of THE LANCET.

SIR,—With most of what has been recently written in THE LANCET by Dr. C. Lillingston and Dr. Clive Riviere the majority of those whose work lies in a sanatorium will probably agree, especially the remarks on the misuse and abuse of graduated exercise as a method of treatment. Such statements, however, as "the doctrine of graduated exercise has done more harm than any other remedy"—coming from such an authoritative source are likely to bring a valuable method of treatment into disrepute. While valuable in suitable cases properly applied, this method is capable of doing harm if given without skill and experience. But surely this is true of most remedies of therapeutic value, and we should take care that we do not, for this reason, allow a valuable method of treatment to fall into undeserved disrepute. Such was the history of tuberculin, lauded for years, abused by many, and now so discredited, that it is probably not used to such small extent as it might be valuable. The same danger now appears to menace artificial pneumothorax, when one sees it advocated in all cases who do not suffer from one of a small list of contra-indications. Dr. Riviere's letter suggests that the method of graduated exercise is usually applied to all and sundry, regardless of the stage of their disease, or the effect of exercise upon it. That surely is a great fallacy! Neither graduated exercise, nor artificial pneumothorax, nor tuberculin, nor rest, nor any other known method of treatment is suitable for all cases all the time, though all of them are of value for some patients for some of the time, while no method is of any value to any patient any of the time which is not controlled by careful observation of the patients' symptoms and physical signs.

And here I would like to stress the great care required in the early weeks when this method is started in afebrile active cases, both in the very small graduations in the exercise given, and also in the look-out for mild symptoms of toxæmia insufficient to cause fever. If these things are carefully watched, as well as the temperature and physical signs, there is little chance of the method being pushed at such times and in such cases as to be responsible for "needless spread of the disease."

That the method is capable of much good, who that has used it in suitable cases, intelligently, can doubt? Many of these patients, in the less advanced stages of the disease, as the months go by, gradually lose their cough, expectoration, and other symptoms; put on weight, become keen on their food, and fit to undertake fairly prolonged exercise, while each examination shows a decrease of their physical signs. It is not possible to believe that these cases are victims of increased activity, especially when one hears of them years later leading healthy lives. It is true that all cases do not result so happily, otherwise tuberculosis would be shorn of half its terrors, but many do. It is also true that to try and obtain such results in three months is to court disaster. *Festina lente* must still be the motto for sanatoria. There are others of the more chronic type of many years' duration. Many such a one for whom there is no hope of permanent arrest of the disease can be brought by this method to a stage of tolerance or health as to allow of a useful and happy life, instead of a useless and therefore miserable one, as I have good reason to know.

Is it not surely best in the present state of our knowledge not to disparage any method of treatment at our disposal, but rather to pick out the good from each, using it at the proper time for the proper cases to the best of our skill and knowledge?

I am, Sir, yours faithfully,

C. BRODRIBB.

Pendyffryn Hall, Penmaenmawr, Jan. 23rd, 1923.

To the Editor of THE LANCET.

SIR,—I was pleased to see that Dr. C. Lillingston, in his excellent article on this subject in THE LANCET of Jan. 13th, drew attention to the danger of the doctrine of graduated exercise, which seems to have become a sort of fetish amongst a number of the profession. During four years' experience as a patient, and 12 years as a sanatorium doctor, I have seen very great harm done as a result of this so-called remedy. As Dr. Lillingston mentions, it is most difficult to graduate exercise and almost impossible to graduate the resultant auto-inoculation. Only last year I had under my care four or five patients from one particular centre where this treatment is used, or should we say abused, very freely, to whom the treatment had done infinite harm. This is surely a scandal, and Dr. Lillingston is to be thanked for having called attention to the great danger of the doctrine of graduated exercise.

I am, Sir, yours faithfully,

Nice, Jan. 24th, 1923. ARTHUR HAWKINS.

THE TREATMENT OF WHOOPING-COUGH.

To the Editor of THE LANCET.

SIR,—I have read Dr. T. Izod Bennett's article on whooping-cough and its treatment in your issue of Jan. 27th. The lines of treatment he recommends are quite inapplicable to the vast majority of cases in general practice as the necessary supervision of the lavish employment of dangerous drugs which he recommends is lacking. Again, the practitioner who is continually jamming needles into his child patients will soon lose them. These are points of *practical* importance that cannot be overlooked. As a matter of fact, I find that, if you can get your cases reasonably early, all the severe symptoms can be abolished well under a month, generally in from two to three weeks, by the following treatment :—

1. Vapocresolene burned at night or in the most severe cases all day.

2. Pure benzol by mouth, six minims to the half ounce for a child of 6 with diminishing doses for lesser ages down to one drachm for a child of 1 year.

If, as so often happens, the child loses its appetite, I find the syrupus ferri phosph. co. soon restores it. Bromide, 1 gr. for each year, may in the severe cases be advantageously added to the whooping-cough mixture. I feel this letter ought to be written because the young practitioner is apt to base his treatment on articles written by experts in the medical press, and the treatment given is far too full of pitfalls to pass unchallenged.—I am, Sir, yours faithfully,

R. LEONARD LEY, M.B., B.C. Cantab.

Great Yarmouth, Jan. 26th, 1923.

PERMANGANATE OF POTASH IN SMALL-POX.

To the Editor of THE LANCET.

SIR,—With reference to my letter in THE LANCET of Dec. 2nd, 1922, on this subject, I find that, through inadvertence, I stated that the observations on the use of permanganate in small-pox at Zanzibar had been made by Dr. de Sousa, the acting principal medical officer. I now understand that this work was carried out by Dr. B. Spearman, the senior medical officer of health. I would like to express my regret for the mistake, to which Dr. Spearman has kindly directed my attention.—I am, Sir, yours faithfully,

ANDREW BALFOUR.

Wellcome Bureau of Scientific Research, Endsleigh-gardens, London, N.W., Jan. 26th, 1923.

FOREIGN METALLIC SUBSTANCES IN FOODSTUFFS.

To the Editor of THE LANCET.

SIR,—At the moment when this subject is before medical officers it may be appropriate to draw attention to a point requiring elucidation.

I find it generally suggested that heavy de-tinning in canned foods is due to inherent qualities in the foods so reacting—namely, vegetable acids in vegetable and fruit products and extractives in the case of soups and meat extracts: no explanation is given for lobster and shell-fish. Heavy de-tinning as now found does not follow on these lines, but is most probable in those canned goods which have a sodium chloride content, either concentrated in the process of their manufacture or deliberately added as part of the process of canning. The factors common to lobster, herring, pork and beans, soups and meat extracts, asparagus, tomatoes, spinach, and peas when canned are sodium chloride and a more watery consistency in packing than that of, say, corned beef. Where a spot of solder is added, all the elements of strong galvanic action are present in the lead-tin couple and sodium chloride solution as electrolyte; a small spot of bare iron in a "sanitary" tin gives the same effect in the presence of salt, whatever the nature of the substance canned, and more especially where the contents are "sloppy," whether the tin be lacquered internally or not.

The crimping of a "sanitary" tin lid can hardly avoid the cracking of lacquer, and, indeed, the tin plate itself so as to expose bare iron. Hence the rust about the lid edge externally and corresponding electrolysis within, especially where a good electrolyte is supplied in the form of sodium chloride. The couple here is tin-iron. The paper or rubber gasket, where present, is often deemed unsatisfactory in certain "springers," when really the packing medium —salt—should bear its share of blame, for it is at the line of crimping and consequent exposure of bare iron that the galvanic process is active and pin-hole perforation occurs. The wooden shaving or the paper case about canned lobster prevents the blackening of the fish, but does nothing for public health purposes. It is a mere concession to æsthetics.

In de-tinning the manufacturers are up against the old problem of how to prevent the pitting of steel plates on a launch's stern when the propeller is of gun-metal and sea water forms the electrolyte. The importance of the electrolyte, and especially of sodium chloride solution as electrolyte, should not further escape notice in the text-books and in the lore of the subject.

I am, Sir, yours faithfully,

W. M. WILLOUGHBY,

Jan. 24th. Medical Officer of Health, Port of London.

A TECHNIQUE OF SPINAL ANALGESIA FOR LAPAROTOMY.

To the Editor of THE LANCET.

SIR,—In connexion with a paper under this title by Dr. S. A. Lane, which appeared in THE LANCET of Jan. 20th, readers may be glad to be referred to a paper on the same subject published in your columns by Mr. F. L. Provis on Jan. 26th 1918 (p. 152). The method there described is identical in essentials and similar in details to that used by Dr. Lane. Whether Mr. Provis was actually the first to introduce this combination of "twilight sleep" and spinal analgesia I am unaware, but he brought the matter to my notice in July, 1917, since which time I have used his method in about 800 cases. At the Prince of Wales's General Hospital it has been adopted as a routine method for most gynæcological and many other abdominal operations for some four or five years. The method will be found in both Hewitt's and Blomfield's standard works on anæsthetics, and is even described in full detail in a recent elementary handbook on the subject.

Dr. Lane has been fortunate in avoiding "stovaine headache." This troublesome complication is most erratic in its incidence, sometimes being absent in a long series of cases and then reappearing without apparent reason. Careful avoidance of all unnecessary movement of the patient (active or passive) is the best insurance against headache, and the impossibility of this in a casualty clearing station explains its prevalence there. Minor operations under stovaine are well known to be more frequently followed by headache than major ones, as after the latter the patients remain more completely quiescent for a longer period. I have found that lumbar puncture in the lateral position is much less likely to arouse the patients than sitting them over the end of the table, and I am inclined to avoid the testing of analgesia with a pin, as sufficient information can almost always be obtained from the relaxation of the muscles.—I am, Sir, yours faithfully,

Queen Anne-st., W., Jan. 23rd. CHARLES F. HADFIELD.

THE PRESENT POSITION OF ORGANO-THERAPY.

To the Editor of THE LANCET.

SIR,—Who, I wonder, is profited by Prof. Swale Vincent's periodical scoldings of the clinical endocrinologist.[1] Certainly not the latter, for we, the

[1] THE LANCET, August 12th, 1922, p. 313, and Jan. 20th, 1923, p. 130.

culprits, are serenely impenitent. Almost certainly not the former, because he is depressingly negative. And surely not the medical public, for no public is ever influenced by unconstructive scolding. After all, what does it matter if we do allow our imaginations occasionally to run riot? Endocrinology is still very far from being an exact science, and guesses at the truth are no more reprehensible in this department than they are in any other sphere where experiment and speculation have walked profitably hand in hand. Did bacteriology rise fully equipped out of Pasteur's head, like Athena out of Jupiter's? Or did radiology out of Rontgen's? And if not, are we expected to believe that there were no vain imaginings in the evolution of these sciences?

Moreover, Prof. Swale Vincent, by his valuable contributions to endocrinology, has done his bit in stimulating that very enthusiasm which he is now so tireless in rebuking. It is a pity that he should be tiresome as well as tireless. Negative nagging is always a nuisance, but when it proceeds from one who has abundantly proved himself to be capable of better things, it becomes something in the nature of a tragedy. I am, Sir, yours faithfully,

Harley-street, W., Jan. 27th. LEONARD WILLIAMS.

"SOME THOUGHTS ON ENDOCRINOLOGY."

To the Editor of THE LANCET.

SIR,—Every new method necessarily passes through a period of criticism, and there are two main types of critics: (1) Those who criticise from the bedside or the laboratory, and (2) those who criticise from the arm-chair. The former are helpful to the criticised, and their criticism is constructive, because it is founded on experimental data; with the latter the reverse is true. The crucial test of any method is its use and not its hypothetical value; it must stand or fall by the results obtained from its practice, and the right of real criticism belongs only to those who have had experience.

As I am one of the gentlemen referred to in "A Physician's" letter in THE LANCET of Jan. 27th, I should like to draw the writer's attention to the following references: *Jour. Physiol.*, 1921, lv., 86, a method for estimating calcium; *Brit. Med. Jour.*, Oct. 29th, 1921, and May 20th, 1922, clinical papers on calcium and parathyroid therapy. Finally, if he will divulge his name and address—privately as he prefers it—I shall be pleased to send him in due course a reprint of a method of standardising parathyroid preparations which I hope to publish in the near future.

I am, Sir, yours faithfully,

H. W. C. VINES, M.D.

Christ's College, Cambridge, Jan. 30th, 1923.

THE THEORY OF VISION.

To the Editor of THE LANCET.

SIR,—There is no subject in which a revision of the statements made is more required than that of vision. Theories are given as facts when there is very little to support them except misstatements. This is particularly the case with the theory that supposes that the rods are percipient elements for perception in a dim light whilst the cones are the percipient elements in daylight. This theory is a very irrational one, for it is difficult to conceive an element stimulated by the decomposition of a photochemical substance which is excited by a weak light and not more strongly by a brighter light. What is the supposed function of the rods during the day-time? Apart from the numerous facts against this theory, it will be found that it is supported almost entirely by misstatements—namely: (1) That certain animals have only cones and others have only rods; (2) that the periphery of the retina is colour-blind; (3) that the eye is totally colour-blind in dark adaptation; (4) that the Purkinje phenomenon and the recurrent image are not found with the fovea. 1. Though I have examined numerous collections I have never been able to find any animal with only rods or only cones, neither have I found anyone who has seen such a retina. The tortoise is the most quoted, it is stated only to have cones; the rods and cones in the retina of the tortoise are as clearly defined and distinct as in the human retina. 2. The periphery of the retina is not colour-blind, when colours of sufficient intensity are used. The reader can test this for himself with a doctor's red lamp. He will find he can see it as red to the extreme periphery. 3. In dark adaptation the eye is not totally colour-blind; those interested in the subject should read the masterly paper by Burch on "Colour Vision by Very Weak Light."[1] Lately I have found that the colour of the yellow spot may be demonstrated by weak light. If three white discs, each two inches in diameter, be fastened on a black ground in a dimly-lighted room, in a line with an interval of two inches between them, on viewing them so that the centre one falls on the yellow spot, this appears darker and orange-yellow, whilst the two others appear bright bluish-white. There is no scotoma corresponding to the rod-free portion of the macula which is equal to a visual angle of about 3°. 4. The Purkinje phenomenon and recurrent image are found with the fovea.

All the facts point to the visual purple being the visual substance and that vision takes place by stimulation of the cones through its decomposition by light.—I am, Sir, yours faithfully,

London, Jan. 26th, 1923. F. W. EDRIDGE-GREEN.

"THE GOLD HEADED CANE."

To the Editor of THE LANCET.

SIR,—The brevity of your reviewer's note on my new edition of the above is my excuse for begging a modicum of your space. The book was issued under great disadvantages, inasmuch as the (1920) stereotyped issue of the New York editions of 1915 was placed on the English market a few months ago, with the imprint of the Oxford University Press upon its title-page. I had hoped that THE LANCET would give me a helpful notice. Your reviewer's objections to the footnote on page 30, that "the Radcliffe Library is perhaps the most beautiful building in Oxford," should be addressed, not to me, but to Dr. Macmichael, who wrote those words just 96 years ago. I will only remark that they were not criticised in the previous review in THE LANCET of Nov. 4th, 1922. As to Knightsbridge, its vaunted salubrity, and its place-names, my statement was originally published in "the History of St. George's Hospital," and for 13 years it has been unchallenged. It was written after many years of research in every pertinent MS. record I could find in the Chapter House at Westminster, at St. George's, and the public record offices; and after revision and correction of the text by my friend, the late Colonel Prideaux, the recognised authority on the topography of Knightsbridge. You will perhaps allow me, since your reviewer does not mention them, to draw attention to the splendid paper, type, and photogravure portraits, with which the publisher (Kimpton) has embellished the volume.

I am, Sir, yours faithfully,

Randolph-crescent, W., Jan. 28th. GEORGE C. PEACHEY.

[1] Proceedings of the Royal Society, vol. lxxvi., B, p. 199.

DONATIONS AND BEQUESTS.—The Manchester Royal Infirmary has received a donation of £1250 from Messrs. Peel and Co., Ltd., Manchester; £420 for the Bowlers' Cot Endowment Fund; £369 from Radcliffe Charities Committee; a legacy of £500 from the late Miss M. A. Morgan; £200 from the late Mr. Charles Duckworth; and £50 from the late Mr. James Lonsdale. Ancoats Hospital, Manchester, has received for the Nurses' Home Building Fund nearly £1200, including £500 from the Right Hon. Lord Cawley; Messrs. Holland, Ltd., £200; Messrs. Hardman and Holden, Ltd., and Hydes Brewery, £100 each. Sir Thomas Rowbotham has given £1000 to the governors of the Stockport Pendleton Charity.

Obituary.

HUNTER FINLAY TOD, M.D., B.CH. CAMB., F.R.C.S. ENG., L.R.C.P. LOND.,

SENIOR AURAL SURGEON AND LECTURER IN AURAL SURGERY, LONDON HOSPITAL.

Mr. Hunter F. Tod, aural surgeon to the London Hospital, died in pathetic circumstances at that institution on Jan. 13th. For some time past he had suffered from a laryngeal condition whose malignancy declared itself a short time ago; realising that an operation was imperative, he chose to be operated upon in one of his own wards in the hospital, and after the operation he went to the Riviera to recuperate. But to him the fact was soon clear that recovery was impossible, and he returned to the London Hospital, preferring, as he said, to die in his own wards among his friends and colleagues.

Hunter Tod was the second son of the late Mr. David Tod, J.P., of Eastwood Park and Hartfield, Renfrewshire, Scotland. He was educated at Clifton and Trinity College, Cambridge, graduating in arts with first-class honours in natural science in 1892, and in medicine and surgery in 1896, in which year he also obtained the English double qualification. His career at the London Hospital as a student was a successful one in every way. He won the surgical scholarship in 1895, was house surgeon under Sir Frederick Eve and house physician under Sir Stephen MacKenzie and Schorstein, and his colleagues in residence included Mr. Russell Andrews, Sir Hugh Rigby, and Sir Neville Howse, V.C. As a student at the London hospitals he gained honours in sports as well as work, being a prominent exponent of Rugby football.

In 1898 he became a Fellow of the Royal College of Surgeons of England, and having determined to take up aural surgery, he studied for a year at Halle, and became house surgeon to the Throat Hospital in Golden-square. This was followed by a further prolonged course of study under the great aural surgeons of Leipzig, Vienna, and Berlin. Although fond of amusement, he worked hard, and acquired a sound theoretical and practical knowledge of his subject. Returning to London in 1901, success came to him rapidly. At the end of that year he was appointed assistant aural surgeon to the London Hospital, a post which was specially made for him, as he was apparently considered too young to become full aural surgeon at once, and a few months later he was appointed aural surgeon to the Children's Hospital, Paddington Green. Within two years he was elected full aural surgeon to the London Hospital, which appointment he held until his death, having had his term of office extended by the committee of management, an almost unique honour. Success also came rapidly in private practice, and he had many distinguished patients. Amongst other positions he was president of the Otological Section of the Royal Society of Medicine during the present session, and had been examiner to the Royal Army Medical College, and a member of the Special Aural Board of the Ministry of Pensions. He was the author of a manual of "Diseases of the Ear," published in 1907. This was a practical book supplying the needs and requirements of students and practitioners alike. In addition to his contributions to medical journals he wrote the article on Diseases of the External Ear and Tympanic Membrane for Allbutt's "System of Medicine," that on Operations upon the Ear for Burghard's "System of Surgery," those on Diseases of the Tympanic Membrane, Adenoids, and Nasal Obstruction for the "Practical Encyclopædia of Medicine and Surgery," and on Acute Inflammation of Middle Ear for Latham and English's "System of Treatment."

Mr. Lambert Lack, who was closely associated with Hunter Tod throughout his professional life, writes as follows: "Hunter Tod had a very distinct but complex personality, one easily misunderstood by those who knew him but little. Those who knew him intimately recognised that he had solid qualities of sterling merit. First, one soon discovered that 'he knew his work.' Blessed with keen intelligence and a good memory, he had made full use of his exceptional opportunities, had worked hard at his profession and mastered it. His opinion on a difficult case was to be trusted, his methods of treatment were sound, he was a skilful and safe operator. Withal he took endless trouble with his patients and was kindliness itself. His reputation among his colleagues may be judged by the unhesitating way they sought his aid when they were themselves in need of aural treatment, and in whatever danger placed themselves unreservedly under his care. Secondly, one must mention his love for the London Hospital. He was an out-and-out 'Londoner,' and eager that the hospital should be first in every way. In his own specialty he strove to give the 'London' the best aural department in the world, and many of the advantages enjoyed there to-day are the direct results of his enthusiasm and pertinacity. His efforts might meet with rebuff, even ridicule, but this rather spurred than deterred him. He was a man with whom one was proud to work, quite free from mean or mercenary motives, loyal and generous in his dealings with his colleagues and his patients, a man who lived right up to the high ideals of his profession although he might never mention them. He wrote little, but that little was good. A small, readable, and reliable text-book on Aural Surgery, some contributions on aural subjects to various systems of medicine and surgery, one or two valuable monographs and reports on cases in various journals. His writings never savoured of advertisement. One could say much more of his solid worth, yet of his lighter side, almost of his foibles, one must also write. Indeed it was these that endeared him to his friends. None of his colleagues possibly but were ruffled on occasions by his mercurial temperament, but none bore him enmity, nor did he bear enmity to any, however acutely he might have differed from them at times. Of short stature, with slight boyish figure, always immaculately, even smartly dressed—he was certainly pleased at being considered the best dressed man on the 'London' staff—his quick, almost jerky movements, vivacious speech, his manner grave or gay by rapid turn, his almost boyish enthusiasm throughout his life, made him appear years younger than he was, and it is hard to believe that he had reached or could ever reach middle age, although he was over 50. He was young in mind and body and full of the *joie de vivre*. His tastes for pleasure and amusement were catholic, and he was an excellent companion. As his means were never too restricted he probably got as much enjoyment out of life as most men. His love and admiration of his hospital continued constant, and it was to the 'London' that he turned when nearing the end of his long and painful illness to seek what alleviation was possible. It was a great comfort to him to be received there, and he constantly expressed his gratitude to his nurses and colleagues for their devoted care. Throughout his illness he maintained a remarkable courage and an almost strange cheerfulness."

In 1909 Hunter Tod married the daughter of Dr. Stanley Rendall, and his family life with his wife and four children was ideally happy. To them we tender our profound sympathy. It is not as a great pioneer, but as a teacher and practitioner of aural surgery, with a lovable personality, whose work and example did much to raise and nothing to lower the highest ideals of his profession, that he will be remembered and missed.

JOHN WILLIAM BALLANTYNE, M.D., C.M., F.R.C.P. EDIN., F.R.S.E.,

EXTRA PHYSICIAN, ROYAL MATERNITY HOSPITAL, EDINBURGH.

Dr. John William Ballantyne, well-known alike as a gynæcologist and an enthusiastic worker in the field of antenatal physiology, died in Edinburgh on Jan. 23rd in his sixty-second year. He was born at Eskbank, Dalkeith, where his father kept a nursery garden, and received his early education at Bonnington Park School, Peebles, proceeding to the George Watson College, Edinburgh, before he entered the University. He was a successful student, and when he graduated M.B., C.M. in 1883 he won the Buchanan scholarship. His interest in gynæcology was manifested from the beginning, and in 1885 he was appointed senior assistant to the Professor of Midwifery in the University, a position which he held for five years. In 1887 he took the M.R.C.P. Edin., and a year later received the Fellowship. In 1889 he proceeded to the M.D. degree, obtaining the gold medal for his thesis, when he won also the Gunning-Simpson prize. From 1890 to 1894 he was lecturer on diseases of infancy in the School of Medicine of the Royal Colleges at Edinburgh, during which time the Cullen prize of the Royal College of Physicians was awarded to him.

Dr. Ballantyne was appointed in 1901 lecturer on midwifery and gynæcology to Surgeons' Hall, Edinburgh, and later to the same position in the School of Medicine for Women. In 1904 he was appointed physician to the Royal Maternity Hospital and two years after to the lectureship on midwifery in the University, and to the post-graduate vacation courses in medicine. At the time of his death he was extra physician to the Royal Maternity Hospital, Edinburgh, and physician in charge of the antenatal department and consulting physician for diseases of women in the Western Dispensary. A fellow, late president, of the Edinburgh Obstetrical Society, and hon. fellow of the Glasgow Obstetrical and Gynæcological Society, Dr. Ballantyne was also a fellow of the American Association of Obstetricians and Gynæcologists, and an hon. member of the American Child Hygiene Association.

His numerous contributions to the literature of the special department of medicine in which he was working possessed a marked literary style and showed a keen appreciation of the correct use of the English language. Between 1892 and 1905 he edited Green's "Encyclopædia and Dictionary of Medicine," in 10 volumes, which has gone through two editions, and the second edition of the "Encyclopædia Medica," in 15 volumes, which is now in course of reissue. He was editor of the Transactions of the Edinburgh Obstetrical Society, and his works include an "Introduction to the Diseases of Infancy," "Diseases of the Fœtus," "Manual of Antenatal Pathology and Hygiene," "Essentials of Obstetrics," and "Essentials of Gynæcology." He was also joint author of "Structures in the Mesosalpinx."

Dr. J. S. FAIRBAIRN writes:

The name of John William Ballantyne will be associated in the minds of his professional brethren and all workers in the public health service in this country with the part he played in introducing the thorough and systematic observation of pregnancy, now commonly known as "antenatal supervision." Ballantyne himself preferred the term "prematernity," and urged the formation of a prematernity department with prematernity beds in all lying-in hospitals, and by his enthusiasm for this side of obstetrical practice obtained the money to inaugurate the first ward of this kind in the Edinburgh Maternity Hospital. Like all pioneers who do great work, he was not satisfied that he himself should have a department in his own hospital, but in season and out of season by his persistence in advocating the need for, and the value of, a study of pregnancy, forced his view on the profession and led to the remarkable development of this side of obstetrics which is so characteristic a feature of present-day practice.

Ballantyne appears to have reached his objective by a somewhat roundabout route, and not by the straight road of preventive medicine. His earlier excursions were made in the direction of the antenatal pathology of the fœtus, and he became, by his investigations into developmental errors and congenital malformations, the highest authority of his day on teratology. His books on the diseases of the fœtus and antenatal hygiene are a monument to his industry and erudition. From trying to determine the maternal disturbances that might affect conception, and through his interest in investigating the factors that lead to deformity and death of the fœtus, he arrived at the necessity for prematernal care and the observation of the pregnant woman; his propaganda in this direction was the chief stimulus to the present-day insistence on antenatal hygiene.

In spite of his concentration on rare and unusual congenital conditions, Ballantyne had nothing of the narrow specialist's outlook on medicine, but rather the open survey of the general practitioner. Besides obstetrics and gynæcology he had extensive knowledge of the diseases of infancy; his editorship of the Encyclopædia Medica showed his insight also into general diseases and accidents, and his knowledge of their treatment and prevention. Latterly, his work became more that of a writer and publicist than a practitioner, and his name became known to a yet wider circle because his energies were by no means confined to the subjects he had made his own.

At the time of his death Dr. Ballantyne was engaged in a very important work for the Medical Research Council—namely, that of putting together the results of a systematic examination of a large number of cases of dead-birth carried out in different centres by different investigators, and much valuable information was expected as a result of his wide knowledge of the subject being brought to bear on this mass of material. By his death this country has lost not only a man of wide learning, but one who has had a remarkable influence on the health service of the country.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lt. G. Aubrey to be Surgeon Lt.-Comdr.

Actg. Surg.-Lts. (Dental): J. L. Edwards, J. M. Park, W. T. L. Douglas, and S. E. Brown to be Surg.-Lts. (D.).

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. A. W. N. Bowen retires on ret. pay and is granted the rank of Col.

Lt.-Col. H. G. F. Stallard retires on ret. pay.

Maj. R. G. H. Tate relinquishes the temp. rank of Lt.-Col. on ceasing to be empld. as Asst. Dir. of Pathology and Hygiene.

ARMY RESERVE OF OFFICERS.

Army Dental Corps.

Capt. D. R. B. Grant, late Spec. List, to be Capt.

TERRITORIAL ARMY.

The undermentioned, having attained the age limit, are retired, and retain their rank except where otherwise stated: Lt.-Cols. Sir J. K. Fowler, H. P. Hawkins (Bt. Col.), S. P. Phillips (Bt. Col.), and N. Dalton; Majs. Sir F. W. Mott (Bt. Lt.-Col.), A. P. Luff (Bt. Lt.-Col.), Sir J. Bland-Sutton (granted the rank of Lt.-Col.), W. A. Turner (granted the rank of Col.), W. G. Spencer, W. E. Wynter, J. E. Lane, and A. F. Voelcker; Capts. C. R. Box (Bt. Maj.), V. W. Low (granted the rank of Col.), W. Turner (granted the rank of Maj.), E. M. Corner (granted the rank of Maj.), Sir J. F. H. Broadbent, G. J. Jenkins, H. Low, J. S. Fairbairn, J. H. Fisher, J. P. Hedley, Z. Mennell, A. E. Russell, F. J. Poynton, J. Murray, T. H. Kellock, H. B. Shaw, H. Johnson, H. S. Clogg, F. W. Tunnicliffe, W. d'E. Emery, D. H. de Souza, R. Knox, R. C. Thomson, W. B. L. Trotter, A. Kingsford, R. R. Cruise, W. Harris, A. Latham, C. Gibbs, A. H. Evans, and J. S. Collier.

ROYAL MEDICAL BENEVOLENT FUND GUILD:

FESTIVAL DINNER.

OVER 400 hostesses and guests assembled at the Hyde Park Hotel on Jan. 30th, the occasion being a festival dinner organised by the Royal Medical Benevolent Fund Guild. Lady Barrett presided over a gathering composed of small intimate parties at tables which were so well grouped that all could hear distinctly the admirable short speeches in which the objects of the Guild were detailed. The Chairman explained that the Guild attempted to supplement the doles allocated by the Fund by grants for educational purposes, in order that orphans and dependents of unfortunate medical men and women should be equipped to help themselves. She gave examples of the kind of help given, such as the placing of the youngest (aged 5) of a family of 10 in an orphan's school and the training of a youth as a radiological assistant. This work, as well as the provision of clothes and coal in necessitous cases, was hampered constantly by lack of funds.

A Plea for Support.

Mr. W. B. Maxwell, starting with apt similes and engaging anecdotes, developed a cogent plea for support of the Fund and Guild, as a deferred debt owed by the public to the medical profession for such services rendered as could never be adequately paid. Dr. Janet Lane-Claypon followed, dwelling especially on the educational side of the work done by the Guild. The medical profession and those friendly towards it should see that none of its daughters should be allowed to drift into the hopeless position of the untrained unmarried woman with no means of support. Sir Douglas McGarell Hogg, whose interest in the Guild had been aroused by Sir Alfred and Lady Fripp, then crisply outlined a scheme which had been suggested and supported by the committee of the Guild for enlarging the scope of the work. Each of the great medical schools of the United Kingdom had a special tradition of loyalty to one or more medical men whose great names were associated with the school. The establishment of scholarships bearing the names of illustrious pioneers by those now connected with a medical school would be a fitting and a perpetual memorial. Those doctors commemorated in this way need not, however, be of world-wide or even of local fame; no more suitable memorial for anyone who was beloved by colleagues, patients, or friends could be imagined. Two scholarships existed already, one in memory of the late Dr. Vernon Jones, and the other in memory of the wife of Sir John Phillips, and Sir Douglas Hogg asked that many more should be created. The Bishop of Chester, in commending this scheme, spoke of the wonderful loyalty of a medical man to his own hospital, which should lead to the success of this project. The toast of the guests having been proposed by the Chairman, Lord Riddell responded with wit and grace on their behalf. In looking through the subscription lists of hospitals he had been struck by the number of doctors among the subscribers. The public ought to aid the profession in turn.

The Profit to the Fund.

The Chairman announced £1288 clear profit for the Fund as the result of this dinner, £120 had already been received from the sale of stamps for the golf competition organised by Lady Rigby and £105 in connexion with a portrait offered to the Guild by Mr. Ralph Peacock. In addition, scholarships on the lines suggested had just been offered—one by Sir Gilbert Wills in memory of his father, and the other in memory of Richard Bright of Guy's Hospital. It was hoped, said the Chairman, that the figure for the dinner fund would still be raised.

Medical News.

UNIVERSITY OF OXFORD.—At a meeting of the electors held on Jan. 16th Dr. Rudolph Albert Peters, Fellow of Gonville and Caius College, Cambridge, was elected Whitley Professor of Biochemistry.—The remaining Degree Days in the present term are: Saturday, Feb. 17th, Thursday, March 8th, and Saturday, March 24th.—Examinations for scholarships in natural science are announced for the following dates: March 13th, at Keble College; March 20th, at Queen's College; and March 20th, at Merton, Exeter, New, Brasenose, Corpus Christi, and Wadham Colleges.—Hertford College: Mr. Robert d'Escourt Atkinson has been elected to a Fellowship for Research.

UNIVERSITY OF LONDON.—A meeting of the Senate was held on Jan. 24th, Mr. H. J. Waring, the Vice-Chancellor, being in the chair. Sir Sydney Russell-Wells was reappointed representative of the University on the General Medical Council for 1923–24. The following Doctorates were conferred: D.Sc. in Embryology, Mr. G. S. Sansom; D.Sc. in Physiology, Dr. G. V. Anrep.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on Jan. 25th, Sir Humphry Rolleston, the President, occupying the chair.—A report was received from the Censors' Board, and it was resolved in accordance with By-law CXC.:—

"That David Arnold Chaning Pearce be declared to be no longer a licentiate of the College; that he forfeit all the rights and privileges of a licentiate; and that his name be expunged from the list of licentiates—during the pleasure of the College."

The following were admitted as Members of the College: Drs. Christopher H. Andrewes, Edwin B. Ash, Lindsey W. Batten, Winfred K. Beaman, Gerald T. Burke, Edwin G. B. Calvert, Maurice Coburn, Lawrence P. Garrod, Frank S. Hansman, Henry L. Heimann, Kenneth S. Hetzel, Thomas A. Hughes, Claude B. Levick, Michael H. Southwick, and John O. Thomas.

Licences to practise physic were granted to 91 candidates, who had conformed to the by-laws and regulations and passed the required examinations. The following are the names and medical schools of the successful candidates:—

W. F. T. Adams, Cambridge and St. Bart.'s; H. S. Allen, Cambridge and St. Thomas's; C. C. P. Anning, Cambridge and Leeds; C. H. Atkinson, Guy's; A. Barker, Cambridge and London; L. J. Bendit, Cambridge and Univ. Coll.; J. C. Bennett, Adelaide and London; J. Bernstein, Leeds; F. E. G. Bonnalie, Cambridge and Guy's; C. C. Bradsworth, Birmingham; Marjorie Broadbent, Royal Free; B. Broman, Manchester; Mary G. Brown, Royal Free and London; Violet W. Brown, Royal Free and St. Mary's; T. B. Butcher, St. Mary's; G. H. Caiger, Cambridge and St. Bart.'s; Dorothy M. Campbell-Meiklejohn, Univ. Coll.; Marjorie F. Cartledge, Royal Free and St. Mary's; F. S. Coleman, St. Bart.'s; Annie E. Connan, Royal Free; Isidore H. Cowan, Leeds; B. A. Crook, Bristol; Dorothy A. D. Cropper, Cambridge and King's Coll.; J. E. D. Crozier, Cambridge and St. Thomas's; D. B. D'Alwis, Ceylon and Middlesex; Mary L. Davies, St. Mary's; V. R. J. de Boissiere, Guy's; Gertrude M. de Souza, Madras and Royal Free; W. Edwards, Cambridge and St. Bart.'s; J. M. Evans, Bristol; R. H. Evans, Cardiff and London; R. R. Foote, St. Bart.'s; H. S. Forbes, Univ. Coll.; L. Forman, Guy's; C. A. H. Franklin, St. Thomas's; Martha Griffith, Charing Cross; P. Hack, Guy's; Margaret C. N. Hadley, London; Kathleen M. D. Harding, Royal Free and St. Mary's; C. F. Harris, St. Bart.'s; G. Henly, Birmingham; N. G. Hill, London; R. J. Hooker, Guy's; M. Jackson, Cape and Guy's; J. Jensen, Copenhagen and London; H. V. Jessop, Birmingham; R. Keene, St. Bart.'s; E. C. K. Kenderdine, Bristol; J. P. Kies, St. Thomas's; Kathleen H. B. King, London; L. Lawn Cambridge and St. Thomas's; C. P. Ledward, Univ. Coll.; J. T. Linklater, Cape and Guy's; J. H. M. Lloyd, Guy's; Alison N. Macbeth-Morland, Lausanne and Univ. Coll.; H. J. Malkin, Univ. Coll.; Grace E. Mizen, Charing Cross; M. S. H. Mody, Bombay and Middlesex; G. O. Montgomery, Univ. Coll.; G. S. Morgan, St. Bart.'s; L. Morgenstern, Manchester; H. V. Morlock, St. Bart.'s; R. M. Morris, Cape and London; H. Mould, Univ. Coll.; E. S. Page, Cambridge and St. Thomas's; Ruth N. Parker-Gray, Royal Free; Emily C. N. Paterson, King's Coll.; H. J. Plowright, Guy's; J. A. L. Roberts, Bristol; B. W. Roffey, St. Mary's; M. Rose, Leeds and Guy's; R. Salib, Manchester; Eva M. Sansom, Royal Free; H. B. Shaw and A. G. Silver, Middlesex; Helen O. Skelton, Royal Free; Agnes B. Smith, King's Coll.; F. E. Smith, Middlesex; R. M. Somerset, Sheffield; H. J. H. Spreadbury, Bristol; H. A. Surial, Cairo and Birmingham; G. B. Tait, Cambridge and St. Bart.'s; G. Tate, Edinburgh and King's Coll.; G. D. Thomson and T. R. Thomson, Cambridge and St. Thomas's; B. M. Tracey and W. R. Ward, St. Bart.'s; H. W. M. Williams, Cardiff and St. Bart.'s; R. N. P. Wilson, Cambridge and Leeds; Marguerite A. Xavier, Royal Free; and James Yates, Manchester.

Diplomas were granted jointly with the Royal College of Surgeons of England as follows: In Public Health to 24

candidates,[1] in Tropical Medicine and Hygiene to 13 candidates,[1] in Psychological Medicine to 13 candidates,[1] and in Ophthalmic Medicine and Surgery to the following 13 candidates:—

Conjuvaram Abbu, Madras and Roy. Lond. Ophth. Hosp; Charles Gustav Berge, Sydney, Roy. Lond. and Roy. West. Ophth. Hosp.; Gerald Edward Breen, Dublin and Roy. Lond. Ophth. Hosp.; George Arthur Brookes, Sydney, Norwich, and Roy. Lond. Ophth. Hosp.; Daniel Davies Evans, Cambridge and St. Bart.'s; Najmudin Kamrudin Gangriwala, Bombay and Roy. Lond. Ophth. Hosp.; Joshua Keyms, Cork and Roy. Lond. Ophth. Hosp.; Edward John McGuinness, Sydney and Roy. Lond. Ophth. Hosp.; Murray Joseph Moher, Ontario, Wolverhampton and Mid. County Eye and Roy. Lond. Ophth. Hosp.; Rowland Jordan Gore Armstrong Pittar, Sydney and Roy. West Ophth. Hosp.; Andrew McKie Reid, Liverpool and Roy. Lond. Ophth. Hosp.; Mukundrai Dolatrai Thakore, Edinburgh and Leeds; Joseph Deane Woolworth, Memphis, U.S.A., and Roy. Lond. Ophth. Hosp.

Dr. W. S. Lazarus-Barlow, Sir John Broadbent, Dr. T. W. Eden, and Sir George Newman were elected councillors, on the nomination of the Council, to take the places of Drs. Lauriston Shaw, Copeman, Chaplin, and Blacker, who retired by rotation.—Dr. Herbert Spencer and Dr. Raymond Crawfurd were elected members of the Library Committee, on the nomination of the Council, to take the places of the late Sir Norman Moore and the late Sir James Galloway.—On the invitation of the Vice-Chancellor of the University of London, Sir William Hale White and Dr. R. A. Young were appointed to represent the College at a conference concerning the courses of instruction provided by medical schools.—Leave to reproduce the portraits of certain physicians in a publication intended to celebrate the centenary of THE LANCET was granted to the Editor of THE LANCET.—The President was appointed as a delegate to attend the celebration of the 800th anniversary of the foundation of St. Bartholomew's Hospital (June 5th–7th next).—Dr. R. O. Moon was appointed to represent the College at the commemoration of the centenary of Jenner organised by the Académie de Médecine (Paris).—Permission was granted to the curator of the Wellcome Historical Museum to borrow the horn of the cow from which Jenner first took his vaccine, for an exhibition in commemoration of the centenary of Jenner.—The President announced that the Council had appointed Lieut.-Colonel William Glen Liston, C.I.E., M.D., to deliver the Milroy Lectures in 1924.—Sir Francis Champneys was appointed, on the nomination of the Council, a representative of the College on the Central Midwives Central Board.—The registrar gave notice that he will move, at a future meeting of the College, certain alterations in the by-laws necessitated by the new regulations concerning the examinations for the licence.—*Lloyd Roberts Lectures:* On the suggestion of the President it was resolved that the nomination and appointment of the lecturer be delegated to the Censors' Board.—A report was received from the representative of the College on the General Medical Council, on the proceedings of the Council at their session in November last.—A report, dated Nov. 10th, was received from the committee of management reporting that Mr. H. J. Waring had been to Cairo to act as visitor of the Board at the examination of the Egyptian School of Medicine, Cairo, in January.—A further report, dated Dec. 19th, was received from the committee of management dealing with the new regulations drawn up by the General Medical Council for Diplomas in Public Health, which are to come into force in January, 1924.

INCORPORATED VERMIN REPRESSION SOCIETY AND COLLEGE OF PESTOLOGY.—The fourth annual dinner of this Society (the first since the establishment of the College) was held at the Café Royal, Regent-street, on Jan. 25th, Colonel the Hon. Cuthbert James, M.P., being in the chair. After the loyal toast had been given, Colonel James proposed the health of the Society coupled with that of Sir James Crichton Browne, F.R.S., the principal guest of the evening and first president of the Society, and in the course of a short speech referred to the need for enthusiasm amongst the public in the matter of vermin repression. The cost of repressive measures, and the name of the Society had, he said, gone somewhat against the latter in efforts to interest the House of Commons in the Society's work, but he foresaw a great future for the work of vermin repression. The individual farmer, particularly the small ex-tenant farmer who was now an owner, was at present frequently unable to undertake any expense in that direction; moreover, he (the farmer) naturally objected to isolated action, for rats from neighbouring property merely overran his land again as soon as he had cleared it. The Government must be interested in agricultural vermin—in the rat, the mouse, and the vermin of fruit and hops and potatoes—and above all, the public must be educated. Dr. Nathan Raw briefly seconded the toast. Sir James Crichton-Browne, replying, referred to his continous connexion with the Society from its beginning, under the name of the Vermin Destruction Society, in 1907. Although the Society had three times changed its name it had held to its aims, and had now reached a stage which would, he hoped, be permanent, for its reconstituted form would appeal to many elements of society; pestology covered every type of vermin, but the rat was the subject of primary consideration. He referred to Dr. Andrew Balfour's recent monograph in the last number of *Parasitology*, in which, although the effort to sterilise rats by means of a preparation had proved unsuccessful, much valuable research work was recorded. Not only zoology, but bacteriology, mycology, and kindred subjects must be included in the scope of the Society's work; the Pasteur Institute had been successful in widespread destruction of voles in France, and he looked forward to the time when an absolutely safe bacterial virus would be available against rats. As a scavenger the rat did more harm than good; a very small contingent of rats was all that was required for purposes of scientific inquiry. The hoped-for holocaust would one day be successful, and our descendants might have to take their children to a natural history museum to see a rat. This type of vermin had not always existed in England; the black rat appeared during the twelfth century, and the brown rat about 1730. In 1610 repressive measures were already found to be necessary; the Privy Council of Scotland in that year granted permission to certain Italians to live in Scotland and to make sacks and machines for the taking of "ratten and mice." Steady, sustained, and simultaneous action was needed; many farmers and householders did not know how to go about the work. A certain number of unemployed men might be given useful work in ratting in country and slum districts; he concluded by commending this suggestion to the Board of Agriculture and to the Ministry of Health. Mrs. Bewick then spoke of her personal experience in ridding property of rats, and emphasised the need for all rubbish likely to attract rats to be buried or burned. Mr. Bruce Wolfe, representing the cinema industry, explained that whilst the cinema firms were very willing to help the Society's cause, the only way in which they could do it was to show films which would pay, films which everybody could understand, and in which the instruction was well wrapped up in a popular way. Mr. A. E. Moore (hon. director of the Society) and Dr. C. W. Hutt (medical officer of health, Borough of Holborn) also briefly addressed the company.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—An Emeritus lecture will be delivered by Sir Richard Douglas Powell, at 3 P.M., to-day, Friday, Feb. 2nd, on Aortic Regurgitant Disease Regarded Specially from a Prognostic and Life Assurance Point of View. Sir John Bland-Sutton will deliver an Emeritus lecture at 3 P.M., on Tuesday, May 1st, the subject of which will be announced later.

LYCEUM CLUB DINNER.—A well-attended dinner was held at this club on Jan. 24th. The medical "Guests of Honour" included Dr. C. Hubert Bond, Dr. F. H. Edwards, Sir Frederick Mott, Dr. Bedford Pierce, and many others. After dinner the chairman, Mrs. N. Shelley, called upon Dr. Montague Lomax to give an address on Lunacy Reform. Dr. Lomax spoke at considerable length, giving instances which he believed to be well authenticated of ill-treatment of patients by nurses, and reiterated his plea for the establishment of a Royal Commission to investigate the charges made. Many guests, while cordially appreciating the hospitality of the club, expressed regret that there was unfortunately no opportunity for discussion of the questions raised.

WORKMEN'S COMPENSATION ACT: *Proposed Appointment of an Ophthalmic Specialist Medical Referee.*—The Secretary of State for the Home Department gives notice that he proposes to appoint an Ophthalmic Specialist Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 20, which comprises the Ashby-de-la-Zouch, Loughborough, Bedford, Bourne, Oakham, Stamford, Uppingham, Hinckley, Leicester, Market Harborough, Melton Mowbray, Kettering, and Wellingborough County Courts. Applications for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than Feb. 17th.

MALARIA IN RUSSIA: THE NEED FOR QUININE.—Reports received from the Red Cross in Russia indicate that there are now some 8,000,000 cases of the disease in the Republic West of the Ural Mountains. In Georgia one-half of the population are affected and at the village of Sambourtale, near Tiflis, two-thirds of the total population have died of malaria. Much of the malaria is malignant. The disease is particularly prevalent in the famine-stricken Volga region and in the Caucasus. The Russian Medical Aid Committee has received an urgent request for quinine in large quantities and contributions may be addressed to Mr. A. Baker, Treasurer, Medical Aid Committee, 68, Lincoln's Inn Fields, London, W.C. 2.

[1] The names appeared in THE LANCET of Jan. 20th, p. 159.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Feb. 5th.

TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.
Paper:
Dr. Arthur Powell: Yaws—(*a*) The History of its Introduction into India. (*b*) Personal Observations on the Primary Lesion in 205 cases. (Illustrated by numerous photographs.)

DERMATOLOGY:
Members of this Section are cordially invited to attend the above meeting.

Tuesday, Feb. 6th.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown by—
Mr. H. A. T. Fairbank, Mr. R. C. Elmslie, Mr. Rowley Bristow, Mr. Gordon Pugh, and others.

PATHOLOGY: at the *Lister Institute* at 8.30 P.M.
Communications, &c.:
Dr. E. H. Lepper: Studies on the Twort-d'Herelle Phenomenon.
Dr. Z. Khaled: Para-enteric Infections in Egypt.
Dr. S. P. Bedson: Further Studies on Platelets.
Dr. J. A. Arkwright: Demonstration of Various "Species" of Rickettsia.

Wednesday, Feb. 7th.

SURGERY: at 5.30 P.M.
Papers:
Mr. G. Grey Turner: A case in which an Adenoma, weighing 2 lb. 2 oz., was successfully removed from the liver; with remarks on the subject of partial hepatectomy.
Mr. Garnett Wright: A case of Partial Resection of the Right Lobe of the Liver for Primary Carcinoma.
Members are invited to relate cases, or to show specimens, of partial resection of the liver for growths.

Thursday, Feb. 8th.

NEUROLOGY: at 8.30 P.M.
Paper:
Dr. E. D. Adrian: Disorders of Function in the Neurone.

Friday, Feb. 9th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown.

OPHTHALMOLOGY: at 5 P.M.
Clinical Meeting at the *Royal London Ophthalmic Hospital (Moorfields), City-road, E.C. 1.*
Cases: The following will be shown by—
Mr. Leslie Paton: Case of Herpes Ophthalmicus with Optic Atrophy.
Mr. F. Juler: Case of Cicatrisation in the Retina.
Miss Rosa Ford: Papilloedema and Homonymous Hemiopia (right upper quadrant).
Other cases will be shown.
NOTE.—The date of the Clinical Meeting has been altered from that previously announced.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Feb. 12th.—8.30 P.M., Discussion on Psycho-Therapeutics, to be opened by Dr. E. Farquhar Buzzard, followed by Dr. William Brown, Dr. M. B. Wright, Dr. S. A. K. Wilson, Dr. David Forsyth, Dr. T. A. Ross, Dr. P. F. Barton, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES, 1, Wimpole-street, W.
WEDNESDAY, Feb. 7th.—8.30 P.M., Mr. J. P. Lockhart-Mummery: Diverticulitis (illustrated).

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Feb. 5th.—11 A.M., Mr. Maingot: Surgical Ward Cases. 12 noon, Mr. Simmonds: Applied Anatomy. 4 P.M., Dr. Archer: Demonstration of Analysis of Stomach Contents.
TUESDAY.—10.30 A.M., Dr. Paterson: Demonstration of Medical Cases. 12 noon, Dr. Burrell: Chest Cases. 4 P.M., Mr. Addison: Diagnosis and Treatment of Tuberculous Hip.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12 noon, Dr. Burnford: Pathological Demonstration. 4 P.M., Dr. Reece: Small-pox and Vaccination.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department.
FRIDAY.—12 noon, Dr. Flett: Radiology. 2 P.M., Mr. Banks-Davis: Diseases of Throat, Nose and Ear. 3 P.M., Mr. Sinclair: Surgical Cases.
SATURDAY.—9 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10.30 A.M., Mr. Maingot: Surgical Pathology.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
FRIDAY, Feb. 9th.—4.30 P.M., Dr. H. W. Barber: Demonstrations of Dermatological Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: JAN.–MARCH, 1923.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, Feb. 5th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Clinical Lecture: Dr. Aldren Turner.
TUESDAY, Feb. 6th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Lecture:—Cerebral Complications of Diseases of the Ear: Mr. Just.
THURSDAY, Feb. 8th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Lecture:—Painful Affections of the Upper Limb: Dr. Grainger Stewart.
FRIDAY, Feb. 9th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Lecture:—Polyneuritis: Dr. Collier.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
NEURO-PATHOLOGY.
MONDAY, Feb. 5th.—12 noon, Paths of Infection in the Nervous System: Dr. J. Godwin Greenfield.
N.B.—A Course of Lectures in the Anatomy and Physiology of the Nervous System will be given if there are sufficient entries for it.
The fee for the whole Course, including Anatomy and Physiology, is £12 12*s.*, but these Lectures may be taken separately for a fee of £4 4*s.* Course without Anatomy and Physiology Lectures will be £10 10*s.* Any part of the Course may be taken separately at a special fee. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
C. M. HINDS HOWELL, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Feb. 8th.—4 P.M., Dr. Nabarro: The Value of the Investigation of the Cerebro-spinal Fluid.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
THURSDAY, Feb. 8th.—5 P.M., Dr. J. L. Bunch: Some Unusual Forms of Skin Disease.

MANCHESTER ROYAL INFIRMARY. POST-GRADUATE LECTURES.
TUESDAY, Feb. 6th.—4.15 P.M., Sir William Milligan: Symptomatology of Brain Abscess.
FRIDAY.—4.15 P.M., Mr. J. Morley: Applied Anatomy of the Gastro-Intestinal Tract.

MANCHESTER, ANCOATS HOSPITAL. POST-GRADUATE LECTURE.
THURSDAY, Feb. 8th.—4.30 P.M., Mr. E. E. Hughes: Diagnosis of Swellings of Testes.

ST. MARY'S HOSPITALS, MANCHESTER. POST-GRADUATE LECTURE (at Whitworth-street West Branch).
FRIDAY, Feb. 9th.—4.30 P.M., Dr. Dougal: Hæmorrhage in Association with Pregnancy.

MANCHESTER FRENCH HOSPITAL, 24, Acomb-street, Whitworth Park.
THURSDAYS, Feb. 8th to March 29th.—4.30 P.M., Dr. A. C. Magian: Some Operations of Gynæcology.

Appointments.

DINGLEY, L. A., M.D. Lond., F.R.C.S. Eng., has been appointed Medical Referee under the Workmen's Compensation Act to the Dudley County Court in addition to the Walsall County Court.

EVANS DAVIES, G. OLWEN, Medical Officer and Public Vaccinator for Blaenau Festiniog and Maentwrog Parishes.

HADDEN, MARIE A., M.B., B.Ch. Dub., Assistant Medical Officer of Health, Ilford.

MACKAY, D., L.R.C.P. & S Edin., House Surgeon to Northern Infirmary, Inverness.

PARKER, H. G., F.R.C.S., L.R.C.P. Edin., to be one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 5.

PRIESTLEY, NORAH K., M.R.C.S., L.R.C.P. Lond., Second Assistant Resident Officer, Chelsea Infirmary.

ROBERTS, C. S. LANE, M.S. Lond., F.R.C.S. Eng., Gynæcologist, and HOWARD, DORIS M., L.M.S.S.A., Physician for Infant Consultations at the St. Marylebone General Dispensary.

TOWERS, A. K., M.D., Ch.B. Edin., L.R.C.P. & S. Edin., D.P.H., Medical Officer of Health, Jarrow.

Manchester Royal Infirmary: HICKSON, SYLVIA M., M.B., Ch.B. Manch., Assistant Medical Officer; ATKINSON, MARY W., M.B., Ch.B. Manch., Assistant Medical Officer, and ROTHWELL, ANNIE, M.B., Ch.B. Manch., Anæsthetist, Central Branch; BURKE, E. T., M.B., Ch.B. Glasg., reappointed Clinical Assistant to the Dermatologist.

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Bucks Hospital.—Res. M.O. £150.
Bolingbroke Hospital, Wandsworth Common, S.W.—Res. M.O. £200.
Bristol Royal Infirmary.—H.P.'s and H.S.'s, &c. Each £120. Also Hon. Ophth. Reg.
Cambridge University.—Lecturer in Psychopathology. £175.
Derbyshire Education Committee.—Asst. School M.O. £600.
Derbyshire Hospital for Sick Children.—Res. M.O. £150.
Dumfries, Crichton Royal Mental Hospital.—Clinical Pathologist. £400.
Finsbury Dispensary, Brewer-street, Goswell-road, E.C.—P. £50.
Gloucestershire Tuberculosis Institution, Standish House, Stonehouse, Glos.—Asst. R.M.O. £300.
Gravesend Hospital, Kent.—H.S. £200.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Ipswich, East Suffolk and Ipswich Hospital.—H.S. £125.
Liverpool, Royal Southern Hospital.—Res. Cas. O. £150. Also Two H.P.'s and Three H.S.'s. Each £100.
London County Mental Hospital Service.—Seventh Asst. M.O. £449.
London Homœopathic Hospital, Great Ormond-street, W.C.—Anæsthetist. £50.
London Lock Hospital, Dean-street and Harrow-road.—Surg. Reg.
Manchester, Monsall Fever Hospital.—Med. Supt. £750.
Middlesex Hospital, W.—Asst. (Therapeutic) for Radiological Dept. £500. Also S. and Asst. S.
Rochdale Infirmary and Dispensary.—Jun. H.S. £200.
Rosslynlee Asylum, Rosslyn Castle.—Asst. M.O. £300.
Rotherham Hospital.—Jun. H.S. £150.
Royal Eye Hospital, St. George's Circus, Southwark, S.E.—Hon. Asst. S. Also Clin. Assts.
Salford Royal Hospital.—Hon. Asst. Radiographer.
Sheffield, South Yorkshire Asylum.—M.O. £400.
Sheffield University.—Asst. Bacteriologist and Demonstrator in Pathology. Each £300.
Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. £150.
University of London.—External Examiners, &c. Chair of Anatomy. £1000.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Hon. P. or S. for Dis. of Skin.
Weston-super-Mare Hospital.—H.S. £150.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointment: Hornsea (York).

The Home Secretary proposes to appoint an Ophthalmic Specialist Medical Referee, under the Workmen's Compensation Act, 1906, for County Court Circuit No. 20, which comprises the Ashby-de-la-Zouch, Loughborough, Bedford, Bourne, Oakham, Stamford, Uppingham, Hinckley, Leicester, Market Harborough, Melton Mowbray, Kettering, and Wellingborough County Courts. Applications should reach the Private Secretary, Home Office, S.W., not later than Feb. 17th.

Births, Marriages, and Deaths.

BIRTHS.

GARROD.—On January 21st, at a nursing home, to Majorie Garrod (née Pierce), wife of Lawrence P. Garrod, of 65, Queen's-gardens, W. 2—a daughter.
REYNELL.—On Jan. 27th, at Nottingham-place, W., the wife of Dr. W. R. Reynell, of a daughter.

DEATHS.

DAVIS.—On Jan. 26th, at 35, Hamilton-terrace, N.W., Marcus John Davis, L.D.S. R.C.S. Eng., of 42, Harley-street, W., aged 64 years.
HARRIS.—On Jan. 23rd, at Hornsey-lane-gardens, Highgate, Alfred Edwin Harris, M.R.C.S., L.R.C.P., late Medical Officer of Health for Islington and Sunderland, in his seventy-third year.
MACARTHUR.—At Bank House, Golborne, on January 27th, in his sixty-third year, Benjamin Waite MacArthur, M.D., D.P.H., M.O.H. Golborne U.D.C.
SPEAR.—On Jan. 27th, at "Coppice Hanger," Pulborough, George Arthur Whitworth Spear, M.R.C.S., L.R.C.P.
WOOD.—On Jan. 24th, at Lisbon, suddenly, Thomas Wood, M.D., Eastwood, Ferry-road, Edinburgh.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

LITERARY INTELLIGENCE.—The merits of Lieut.-Col. R. H. Elliot's "Tropical Ophthalmology" have been widely recognised abroad, as translations into French and Spanish have already been published, and reviews have appeared in Japanese and Arabic as well as in many European languages. The publishers state that arrangements are now in progress for making the work available for German-speaking readers.

Notes, Comments, and Abstracts.

A PLEA FOR CHANGED METHOD IN THE TREATMENT OF THE TUBERCULOUS POOR

BY CLIVE RIVIERE, M.D., F.R.C.P. LOND.,
PHYSICIAN TO CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

No one conversant with the present-day treatment of tuberculosis among the working class will deny that the results are eminently unsatisfactory. The so-called "failure of sanatorium treatment" is, doubtless, but an inaccurate expression of this fact: inaccurate since it is well known to tuberculosis workers that the sanatorium does all that is allowed it under the circumstances, and the failure of treatment does not lie at its door. Let us inquire into the causes of this failure, and see whether there is not a better alternative to the present system at no more, or even less, than the present cost. For the sake of brevity and clarity, though at the risk of being unduly dogmatic, let us approach the matter by the elementary method of question and answer.

Our Present Method of Treatment.

Bed Treatment.

Q. What is our present aim in bed treatment?—*A.* To get rid of fever—that is, to reduce excessive and uncontrolled auto-inoculation, and to get the patient up and about as an afebrile case.

Q. What does this do for him?—*A.* It establishes "tolerance" against the toxins of disease, and so enables him to avoid excessive "focal reactions" whereby disease is activated and toxæmia renewed.

Q. When he leaves the sanatorium or hospital after two or three months' treatment is his disease arrested?—*A.* No, it is nearly always still active, as is shown by the physical signs, which change but little in so short a period.

Q. Do exercise and movement exert any effect on the diseased areas providing his "tolerance" prevents febrile and focal reactions?—*A.* Yes, they flood the lungs with blood—the pulmonary circuit being obliged to pass all blood which the systemic circulation sets in motion; also, the respiratory movements, becoming more ample and rapid, the diseased lung is stretched and exercised.

Q. Are active movements and intermittent flushing with blood approved treatment for active tuberculous lesions?—*A.* No.

Q. How long do patients spend in hospital or sanatorium?—*A.* Two or three months, sometimes less.

Q. How long does it take to cure pulmonary tuberculosis?—*A.* One year to two or three years.

These queries and answers are meant to cover the average case coming under treatment—that is, a case with disease of decided amount and decided activity. It will not be denied that the usual aim is to get patients out of bed and about as early as possible—that is, to establish "tolerance," so as to make way for others.

Out-Patient and Dispensary Treatment.

Here we have to deal with patients freshly diagnosed or freshly under observation, and patients who have regained their lost tolerance after a short period of hospital or sanatorium treatment.

Q. Have these patients active disease?—*A.* For the most part yes, some with "tolerance" (i.e., without fever), and others with decided fever and awaiting admission to a bed.

Q. Should these patients with active disease be walking about?—*A.* No! Those with tolerance are yet subjecting their disease areas to movement and congestion; those with fever are suffering, in addition, from unrestrained and harmful "focal reactions."

Q. Do these patients walk about—for the most part without restriction?—*A.* It will not be denied that they do: it is not, the writer thinks, always ascertained beforehand whether a case marked for admission has fever, nor are these cases often sent to bed until admission as they undoubtedly should be. If bed were recognised by the profession generally as the routine treatment of all cases freshly diagnosed it would be more easy to force it successfully upon the unwilling hospital or dispensary out-patient.

At this point it is due to admit the argument that there may be robust patients with slight lesions showing a tendency to healing in whom "febrile" and "focal" reactions and some grade of movement may be permitted without harm. Nevertheless, it is probable that we take this too much for granted in this country. It is undoubted that the general health and immunity of such a patient may improve and that his lesion heal, but it may well be that it does so with a fibrosis more widespread than was necessary (see on). With healing lesions of wide extent this may lead to permanent disability. Moreover, who is to exclude the presence of caseous areas whose softening and discharge may still further hinder recovery? But the writer does not wish to revive here the "rest versus exercise" controversy—his

argument is directed towards severe or decided tuberculous disease among the hospital class.

Where the Present System Fails.

Obviously it fails in this—that early cases are often allowed to do themselves irreparable harm before admission to hospital or sanatorium; and that all through treatment cases of active disease are about and exercising. In this connexion it may be interesting to call to mind our knowledge of the means whereby the body fights tuberculosis. There are, we know, "immune responses" to "antigen" (autotuberculin) whereby antibody is formed and the bacillus gradually overcome. These "immune responses" are interrupted where the body is overcome by toxæmia (uncontrolled auto-inoculation and fever), but begin again when rest reduces the blood-flow to the lungs, and less toxin is washed out. As disease becomes less active and begins to heal toxins are diminished, but long before activity has gone the body will learn to establish "tolerance" to the toxins (? antituberculin). Hence patients can and do go about with unhealed and still active disease though with little or slight symptoms, and here is the danger. Not only are they running constant risk of further activity brought about by some excessive auto-inoculation (over exercising, &c.) and the neglect of this when it comes, but also the resolution of their disease is almost certainly delayed and rendered less complete. It has been demonstrated that a chemical irritant injected into the lung excites zones of inflammation varying with the concentration of the irritant—a central necrosis, next a fibrinous layer, then serous inflammation, and lastly a zone of proliferation of fibrous tissue. A similar process occurs in tuberculosis. When the lung is kept at the maximum of rest a zone of fibrous tissue will be developed at the line of "optimum irritation" and good encapsulation ensue. If movement and blood-flushing is allowed (under exercise) there will be no fixed optimum, and a wider diffusion of less well-developed fibrous tissue will result in place of an effective limiting capsule. Moreover, in areas where exudative or broncho-pneumonic processes occur and caseation ensues this is likely to soften and discharge itself under movement and increased blood-supply, as can be readily demonstrated with caseous cervical glands. In the neck this may accelerate healing, but in the lung this process leaves behind a cavity which the tissues, extended under a high negative pressure, cannot again close. Thus is exercise during activity of disease responsible for its delayed healing and spread.

The Corollary.

So much for facts which will not be seriously disputed by tuberculosis workers, albeit here rather dogmatically stated for the sake of brevity. Where, we must ask, do they lead? Obviously to this:—

1. That bed is indicated as soon as ever tuberculosis is suspected or detected, and that, in the hospital class, it should be continued, for safety, until disease is practically arrested. It will be recognised that we are here playing for safety—we have to choose, not between rest and therapeutic exercise, but between rest and *uncontrolled* exercise! It has been remarked that in the treatment of tuberculosis exercise is as valuable as rest *but far more dangerous*—among the ignorant working class it is disastrous!—rest is the only safety!

2. That, since pulmonary tuberculosis is a disease which takes a year or longer to cure (the time would be greatly shortened if cases took to bed at the first symptoms), it is obvious that we cannot give bed-rest during the whole stage of activity in institutions, and that *the patient's own bed, moved into the open or near a window, is the only place where immediate and prolonged rest treatment can be carried out.* This, in the writer's opinion, is the only logical solution of the treatment of tuberculosis in the working class, and its principles, at least, might well be also seriously considered and taken to heart by those who treat patients of a class who can afford to do the best for themselves.

Bed-Rest for the Tuberculous Poor—the "Class Method."

Fortunately the treatment of the tuberculous poor in their own beds has been already tried, and tried with success. Pratt, of Boston, described his "class method" of treatment so long ago as 1908 in the *British Medical Journal*. The patients lie out on balconies, roofs, or in yards, but a bed at the open window with the sashes removed would, the writer thinks, serve the purpose sufficiently well. Frequent visits are made by a special "visitor" (who would best be a nurse as far as provision could be made) and a record is kept of each case. The patient is recumbent or semi-recumbent and is advised to lie mostly on the diseased side under which a small firm pillow is placed. Visitors, excitement, and talking are avoided as far as may be. When they are judged fit for it patients attend once weekly at the medical centre to be weighed, and to have pulse and temperature recorded. The names of those who have gained most weight, and of those who have spent most time in the open air are chalked up on a blackboard. The patients chat among themselves, are given a few minutes' "talk" by the doctor, and then disperse. Their chests are examined monthly. Membership of each "class" is limited to 25, and in this is said to lie the secret of success, in that they become keen to compete with one another in the battle for health.

Adami has noted that in Montreal, where the method is being tried, the patients gained twice as much weight as did patients in a sanatorium, run on similar lines as to rest, 70 miles outside the city. This he ascribed to psychological causes, among which the "home" factor was considered important. The average bed-rest among Pratt's cases was four months, of graduated exercise combined with bed-rest four to seven months, and the whole treatment ran up to a year and in some cases longer. The moral suasion which will carry patients through this prolonged régime must be based on the tone of the "class" of 25 members, derived largely from the character and convictions of their doctor, on the effects of competition, and on the choice of the "visitor." There will be, under this and all systems and in every walk of life, patients whose characters lack the grit necessary for recovery from tuberculosis, and they must go under as now.

Pratt's intensive bed-rest system has enrolled in its favour many good American phthisiologists, among whom Bushnell, Kinghorn, and Schaefer may be mentioned, and the following figures of recovery are given for comparison with those for "graduated labour." I have here placed beside them also those of the King Edward VII. Sanatorium, Midhurst, for 1917:—

Years after discharge.	Frimley cases (large numbers) at work.	Midhurst (all cases T.B.+), "well" or "alive."	Pratt's unselected cases, all T.B.+ (191 altogether), at work.
	Per cent.	Per cent.	Per cent.
1	61	69	95
2	50	61	92
3	46	50	87
4	44	47	76
5	39	39	71
6	42	38	69
7	23	38	70
8	—	33	70
9	—	38	64
10	—	34·7	59

The figures for Pratt's bed-rest system are too striking to be accepted without further careful evidence, and his material is certainly over-small for statistical valuation. If further experience proves them to be anywhere near the truth there is little doubt where the secret of this success lies—namely, in the institution of *rest at the outset.* Under our present system the patient is allowed to muddle himself into severe and often ineradicable disease before any real treatment is started. If, as soon as disease was suspected or diagnosed, the patient went straight home to bed and remained there, there would undoubtedly be many more real recoveries than occur at present.

But whatever the value of these figures may be we have here, at any rate, a system of treatment based on safe lines and sound principles, which has worked in practice, has elicited the enthusiastic approval of men on the spot, and seems capable of infinite extension. It amounts to a modified dispensary system and would, no doubt, entail careful organisation, but it demands little or no institutional treatment, and should hence prove less costly, on the whole, than our present schemes. Indeed, Adami, working it out on his Montreal experience, suggests that 8 to 11 months of this treatment would cost about £16, as compared with £25 for 10 weeks of treatment under present methods—with results which we all deplore! (The former figure, however, seems to ignore the cost of maintenance, which here falls on the patient, while the latter presumably includes it.) Tents, "balconies," blankets, and reclining chairs were furnished free of cost (presumably lent) to Pratt's Boston patients.

In this country, where institutions already exist, it might be used as a supplement to these. Especially "bed-rest" at home could be arranged and supervised so soon as the disease is first suspected or detected, and could be carried on some months,—four, six, or eight—before the patient's admission to hospital or sanatorium. These institutions could carry out, as now, that most needful business the graduated return of the patient to ordinary activities, but would then be doing so at the right moment—namely, after disease had been given time for quiescence, not, as now, when disease is still of decided activity. If all cases could start with a routine of four to six months' bed, under fresh-air conditions, disease would tend to be arrested at earlier stages, and after-results would surely be better than at the present time. There would, of course, still be cases caught too late, but there would be fewer of them—there would

also be certain cases whose disease spreads in spite of all we can do to arrest it—there might also be cases which needed less than the care spent on them. The routine would be duly modified to meet these needs.

Being built up on the "expanding bookcase" principle, each "class" being a complete unit, the "class method" should be neither difficult nor expensive to handle, can be tested on a small scale, and can be carried out equally well in small or in crowded areas. If medical opinion were roused to adopt such a method it might become the useful practice of doctors to send to bed all patients suspected of pulmonary tuberculosis pending its definite diagnosis (and, incidentally, to start a "resting temperature" chart!). This would be a great step forward in the interests of all classes! Having long watched, as have so many others, with a heavy heart, the disappointing results of our present system, the writer would put in this plea for a change, based on the view that rest is the only safe treatment for the tuberculous poor so long as disease remains active or incompletely arrested.

THE CHAULMOOGRA PLANT IN LEPROSY: AN ANCIENT REMEDY.

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 13th I read under this heading an ancient story by Major-General Sir Patrick Hehir on the efficiency in leprosy of the kalaw tree, from which chaulmoogra oil is obtained. The story narrates its use by Rama, a king of Benares, who was afflicted with leprosy, and who also cured Princess Piya of the same disease by these means. Later on she is said to have married him, and to have presented him with twin sons on 16 occasions. I do not know where he got hold of this ridiculous story. Rama never went into exile for leprosy, and the successive story has no foundation.

Sir Leonard Rogers has carried out recent experiments in chaulmoogra oil, but it is right to remember that long before his work the late Dr. Bhau Daji, of Bombay, a literary and talented university medical man, and Dr. Anna Moreshwar Kunte, demonstrator of anatomy in the Grant Medical College, Bombay, were using chaulmoogra oil in leprosy both externally and internally, with good results (vide Bombay Royal Asiatic Society's records, Researches by Dr. Bhau Daji). A description of the drug is in the Pharmacographia Indica, by Dr. W. Dymock (1890, i., 142), and gives a history of chaulmoogra oil as used in leprosy up to the indicated date. An account of the chemical constitution of chaulmoogra oil can be found in the Transactions of the Chemical Society, 1904–05.

I am, Sir, yours faithfully,
G. C. KUSUMBEKER, M.R.C.S., L.R.C.P. Lond.

Torrington-square, London, W.C., Jan. 24th, 1923.

MEDICAL STUDY IN GERMANY.

To the Editor of THE LANCET.

SIR,—I should like to endorse your Berlin correspondent's article on the above subject in THE LANCET, of Jan. 20th. I spent two months in Berlin recently and visited several teaching centres and came into contact with many medical students. The teaching of surgery and midwifery in particular seemed to me very extraordinary after being accustomed to having beds allotted to one in the wards and being able to follow up one's cases; and in the case of midwifery to conduct labours on one's own responsibility in the hospital extern maternity department. The surgery lecture-demonstrations I attended were held in a semi-circular theatre with about 200 numbered tip-up seats. Down below a small army of assistants, subassistants, and assistant subassistants would make their appearance, followed by a patient in bed; and then the professor. Two or three students would descend to the "arena" and be allowed to examine the case—generally in a slip-shod manner. After the professor had made a diagnosis and outlined the treatment, the case would retire and another enter. The treatment depended largely on what could be obtained—many lines of treatment were taboo on account of the expense; iodine in particular was relatively extremely expensive. Many of the students I met had only examined cases for two or three mornings in two terms. In the midwifery section the women were brought into a similar theatre on couches, generally in the lithotomy position with handkerchiefs over their faces. A retroverted uterus would be corrected, or a prolapsed cord replaced and the patient disappear, never to be seen again by the students. They were fortunate if they could do a few vaginal examinations during their course. There are university polyclinics where students can attend if they wish, but even then they only see a few patients and the number of students makes it impossible for them all to attend these clinics.

The students themselves were a very mixed lot—I should think not more than 60 per cent. were Germans. There were many Czecho-Slovakians, the rate of exchange being in their favour and the language presenting no difficulty. Also I was struck by the number of oriental students, especially Japanese. The German medical student class are having a great struggle to exist; most of them are working as well as studying (as, of course, many French students have to do also). One man nearing his final examination was attending his lectures in the mornings, assisting a private doctor in the afternoons, and working as an English- and French-speaking telephone operator for the Inter-Allied Commission from 9 P.M. to 9 A.M. Another man was a cinema pianist, and yet another was a lamplighter. The lack of clinical experience and the conditions under which these people learn, makes one think that there is probably some truth in the term "Arm-chair Professors" that has been levelled at some medical scientists.—I am, Sir, yours faithfully,

J. NORMAN WHEATLEY.

London Hospital, E., Jan. 22nd, 1923.

ARTICLES SENT BY POST FOR MEDICAL EXAMINATION OR ANALYSIS.

THE Postmaster-General has called our attention to the fact that pathological specimens are frequently sent by post, by members of the medical profession and other persons, in packets which are not made up in accordance with the regulations published at pages 22–23 of the Post Office Guide. Apart from their liability to cause damage to other packets conveyed in the same mails and to injure officers of the post office, packets of the kind found not properly packed are regarded as prohibited articles and are destroyed.

The following official leaflet summarises the regulations:—

DELETERIOUS LIQUIDS OR SUBSTANCES.
Articles sent for Medical Examination or Analysis.

Deleterious liquids or substances, though otherwise prohibited from transmission by post, may be sent for medical examination or analysis to a recognised Medical Laboratory or Institute, whether or not belonging to a public health authority, or to a qualified Medical Practitioner or Veterinary Surgeon within the United Kingdom, by *Letter Post, and on no account by Parcel Post*, under the following conditions:—

Any such liquid or substance must be enclosed in a receptacle, hermetically sealed or otherwise securely closed, which receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as saw-dust or cotton-wool) so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle. The packet so made up must be conspicuously marked "Fragile with care," and bear the words "Pathological Specimen."

Any packet of the kind found in the parcel post, or found in the letter post not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures. Further, any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution.

If receptacles are supplied by a Laboratory or Institute, they should be submitted to the Secretary, General Post Office, in order to ascertain whether they are regarded as complying with the regulations.

THE BOSTON CITY HOSPITAL.

THE report of this institution which, with its various annexes and convalescent home, contains 1207 beds, has just been issued for the fifty-eighth year of its existence. It is an elaborate analytical document of 118 pages, and is a record of excellent work. To the hospital proper there were admitted during the year ending Jan. 31st, 1922, 17,576 patients, the number of patients treated in the out-patient department during the same period being 32,377. The cost per day for each ward patient was $3·03; for each patient at the convalescent home $2·45. In the report of the pathological department it is sadly pointed out that inasmuch as there are no promising financial prospects for pathology as a life work, the department is used as a stepping-stone to something more remunerative. The laboratory is trying the experiment of having as assistant a medically trained woman who desires to make pathology her profession. A thyroid clinic has been established for the purpose of aiding in the diagnosis and treatment of possible thyroid disorders, and during the year 496 basal metabolism tests have been done on 322 cases. As a result of prohibition new and strange concoctions are being drunk by those addicted to the use of alcohol, and the poisonous nature of these beverages has made it necessary to admit every case of addiction, thus adding greatly to the burdens of the institution.

INDEX TO "THE LANCET," VOL. II., 1922.

THE Index and Title-page to Vol. II., 1922, which was completed with the issue of Dec. 30th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.